ASSESSING PERCEPTIONS, KNOWLEDGE GAIN, BEHAVIORAL CHANGE, AND ECONOMIC IMPACT RELATED TO THE ADOPTION OF BEST MANAGEMENT PRACTICES BY PAST PARTICIPANTS OF THE TEXAS A&M AGRILIFE EXTENSION SERVICE MULTI COUNTY NEW LANDOWNERS EDUCATIONAL SERIES

A Dissertation

by

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ABSTRACT

During the past decade, there has been a tremendous influx of new landowners into South Central Texas, particularly in the four counties of Austin, Colorado, Fayette, and Washington. This area of the state is fast becoming a destination for individuals wanting to exit the urban environments of Houston and San Antonio and live a rural lifestyle. From 2006 - 2010, over 1500 people took part in the Multi County New Landowners Educational Series, hosted by the Texas A&M AgriLife Extension Service offices of Austin, Colorado, Fayette and Washington Counties. Individuals who participated in the course were all considered to be new land owners or land owners that had no formal education in property management or agricultural production. The course exposed them to several best management practices and to the Texas A&M AgriLife Extension Service. The purpose of this study was to determine the impact of the series on the participants as it pertained to their level of adoption of best management practices for their property, estimate an economic impact and determine the participants attitudes and perceptions of the Texas A&M AgriLife Extension Service. The study consisted of an online survey sent to past participants of the series and one-on-one interviews with select participants. Findings revealed significant adoption of several best management practices, which in turn improved the overall value per acre of the participants' property. Further, their perceptions about Extension were positively enhanced as a direct result of their participation in the series.

DEDICATION

This document is dedicated to all of the County Extension Agents that I have served with over the years. Your hard work and devotion to the citizens of each of your counties in which you serve is greatly appreciated by the people of the great state of Texas. I know of no other occupation that requires a regular 8-5 schedule, plus practically every night and weekend. You're always on call, ready to assist your clientele with the best information and practical hands on experience. Our occupation is not just a job, but a way of life and it takes a special person to dedicate and sacrifice in order to get the job done. I commend you and I'm proud to be a part of you.

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for all of your support, guidance and assistance on getting me this far. A wise man once wrote that four things never come back, the spoken word; time past; a spent arrow and the neglected opportunity. Thank you for not letting me waste this opportunity, and for never giving up on me and believing that I could do it, even when I did not.

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INTRODUCTION

During the past decade, there has been a tremendous influx of new landowners into South Central Texas, particularly in the four counties of Austin, Colorado, Fayette, and Washington. This area of the state is fast becoming a destination for individuals wanting to exit the urban environments of Houston and San Antonio and live a rural lifestyle. According to the Austin County Appraisal District, since 2000, Austin County has on average over 400 new landowners that had purchased 10 acres or more annually. These new landowners are continuously seeking educational resources due to the fact that most do not have a background related to land stewardship and/or agricultural production (Wilkins, et. al., 2000). Extension responded to this need in 2006 and designed an educational program specifically targeting new landowners. The program is a collaborative effort among the four county agents in Austin, Colorado, Fayette, and Washington Counties. The program, entitled "The Multi-County New Landowners Educational Series" is a series of eight educational events that specifically target the needs and interests of new landowners. Subject matter includes information on agricultural tax valuation, weed and brush control for small acreage, soil fertility, forage production, stock pond management, livestock and horse production, wildlife management, fruit and nut production, and determining range condition. The agents in each of the four counties represented work closely with local landowners, Extension Specialists and other agencies in their respective counties to host each of the monthly educational events. At the conclusion of each of these educational programs, a customer satisfaction questionnaire with a retrospective post analysis is administered to

participants' to gather information on the amount of knowledge gained, anticipated best management practices adopted and perceived economic benefits on the specific topics presented. Based on the evaluation results collected from 2006-2010, the course has had an profound impact on the amount of knowledge gained by the participants and an overall customer satisfaction rating of over 90% (Pierce, et. al, 2010).

According to surveys conducted by the Texas A&M AgriLife Extension Service, the majority of individuals purchasing property in Austin, Colorado, Fayette and Washington Counties, had no prior affiliation with the area, such as having lived there before or having relatives living in that county (Pierce, et. al, 2010). These counties are still rural enough that most of the individuals moving to this location want to purchase property and become involved in some sort of small agricultural enterprise. There is often self-doubt among learners, who come from a variety of backgrounds and experiences having nothing to do with land management or agriculture (Etter, et. al., 2010). New land owners routinely contact the Texas A&M AgriLife Extension Office for advice on issues affecting their property. Most have few ideas of what to do with the property that they had recently purchased, but were very enthusiastic about the prospects of owning their own land.

While there is a need for such educational programs to continue as new landowners purchase property in South Central Texas, it is important to measure the adoption of recommended practices. This study sought to assess the actual adoption of best

management practices by the past participants of the "Multi-County New Landowners Educational Series," evaluate the economic impacts resulting from participation and subsequent adoption of recommended practices, and assess the perceptions related to the Texas A&M AgriLife Extension Service. The findings from this study can be used by the administration of the Texas A&M AgriLife Extension Service interpret the impacts of educational programs as it relates to soil and water stewardship, animal welfare, integrated pest management and economic impacts on the state economy. County Extension Agents will find this data helpful as they continue to program for this new group of clientele.

Review of the Literature/Theoretical Framework

Background of Extension

Extension education work in the United States officially began in 1914 with the passage of federal legislation, known as the Smith-Lever Act. This official act melded together prior legislation from the Morrill Act of 1863 and the Hatch Act of 1887, and provided for the diffusion of useful and practical information about agriculture and home economics and encouraged the application of the same (Smith-Lever Act, 1914). Since the act was passed by the twenty-eighth congress, Extension across all states has strived to educate the masses on the best practices in agriculture through a network of teaching, research and local Extension Agents working in the counties. County Agents across the country have strived for over the 100 year history of Extension to provide the latest research-based information to the clientele in their community (USDA-NIFA, 2014).

Extension work in Texas can trace its roots back to Seaman Knapp and his work on the Porter Farm in Kaufman County in 1903 (History of Iowa State, 2007). Since that point in time, Extension work throughout the century has been met with positive reviews. However, as Agricultural Advisor Tom Marks found out in the early 1900's it was not always easy, as he tried and failed to disseminate information to the farmers of Jack County, Texas. When one of his close friends tried to console him by stating, "sometimes you just can't teach an old dog new tricks." Tom Marks responded with his now famous line "well next year I'll work with the pups" (Texas Historical Commission, 1968). Marks disappointment came from the fact that despite his best efforts, the local farmers would not adopt his best management practices for farming corn, so he enlisted the farmers own sons and worked with them to help diffuse new processes. The group that Tom Marks founded was named the Boys Corn Club, and was the precursor to the 4-H clubs of today (Uricchino, Coley, & Moore, 2011).

Since its inception, Extension has been one of the most successful agencies in securing users' adoption of its research results (Rogers, 1995). The Extension Service's first big test came during World War I, when it helped the nation meet its wartime needs by encouraging farmers to increase wheat acreage significantly, from an average of 47 million acres annually in 1913 to 74 million in 1919 (USDA-NIFA, 2014). During World War II, the Extension Service again worked with farmers and their families, along with 4-H club members, to secure the production increases essential to the war effort.

Each year for 5 years, total food production increased. In 1944, food production was 38 percent above the 1935-1939 average. In the years following World War II, Extension played a major role in extending information about mechanization, soil fertility, introduction to chemical based pest control, hybrid crops and other new technologies (Rasmussen, 1951). At the same time, the number of farms decreased dramatically from 5.4 million in 1950, to 1.9 million in 1997. While the number of farms decreased, the number of acres farmed did not and according to the United States Department of Agriculture, productivity increased dramatically during that time period (Conte & Karr, 2001).

Extension in more recent years has adapted to an ever-changing clientele base, as urban populations have increased and rural areas have seen a gradual decrease in population (Wilkins, et al, 2000). However, Extension has continued to work in its four major subject matter areas of 4-H Youth Development, Agriculture and Natural Resources, Family and Consumer Sciences and Community Development. The National Cooperative Extension System in the United States is found in each state and each territory, headquartered out of its land-grant university and a network of local or regional offices. These offices are staffed by one or more experts who provide useful, practical, and research-based information to agricultural producers, small business owners, youth, consumers, and others in rural areas and communities of all sizes (USDA-NIFA, 2014). According to the Texas A&M AgriLife Extension Service (2014), there are currently 250 county Extension offices and some 900 professional educators serving in Texas.

The mission of the Texas A&M AgriLife Extension is: improving the lives of people, businesses, and communities across Texas and beyond through high-quality, relevant education (AGL Ext, 2014).

Extension Program Impact

No matter the Extension discipline, Extension professionals strive to provide the educational programs that are making a difference in the lives of people (AGL Ext, 2014). Davis (2003) concluded that measurable outcomes and impacts were essential for the long term success of Extension. The true impact of Extension programming can be measured in many ways, but perhaps the most common method of measuring outcomes and impacts that Extension uses is program evaluation through the use of a formal survey instrument. According to Texas A&M AgriLife Extension Services Office of Organizational Development, "Evaluation is a process to bring information to bear on decisions about programs . . . where decisions can be process-oriented (how the program was implemented) or results oriented (did the program affect participant reactions or produce client change)" (AGL Ext. OD, 2014). The term evaluation is defined as "the process of determining the merit, worth or value of something or the product of that process" (Scriven, 1991, p. 139). These evaluations are often conducted by County Agents in their individual counties following the conclusion of programs. Evaluations often follow Kirkpatrick's (1998) four levels of evaluation: Level 1- Participant Reaction (customer satisfaction), Level 2 - Learning (knowledge gained, skills acquired and attitudes changed), Level 3- Behavior (the adoption of a new technology or a best

management practice) and Level 4- Results (the long term impact of the program). The true impact of an Extension program can and should be documented to stake-holders as a means of validating worth, especially to those in positions granting funding (Jayaratne, Bradley & Driscoll, 2009). If Extension is to remain a financially viable organization, educators must produce substantive, measurable program outcomes and impacts (Hachfeld, Bau, Holcomb & Craig, 2013). Beyond the issues of funding, evaluations of Extension programming efforts should be viewed by all Extension professionals as a fundamental part of being a professional educator (Scarborough, Killough, Johnson, & Farrington, 1997). County Agents and Extension professionals need to be able to answer the following questions related to evaluation: "Did we accomplish what we intended?" and "How do we know?" This is the essence of evaluation for today's educator. Follow up with program participants is essential to determine behavioral change; without follow up it is not possible to show program success (Shepard, 2002, para. 2).

Historically, Extension programs have been developed to have an impact on participants. “It is likely that Extension programs make a positive difference in the lives of individuals and their communities and that Extension greatly benefits society as a whole" (Workman & Sheer, 2012, para. 32). Another measure of how Extension programs have an impact can be measured in the benefit to those beyond who may not have participated in the educational portion of the programming, but who are still impacted by the results. Extension is able to have a larger impact that is not only important for the community, but also essential to sustain funding and positive political implications (Kalambokidis,

2004). Each county office in the state of Texas compiles an annual report entitled "Making a Difference." This report highlights Extension programming impact on a county level. The report is made available to stakeholders, participants and funding sources as a means to demonstrate outcomes of featured programs. An example of a successful programing effort from Fayette County was recorded in the 2013 "Making a Difference" document. The summary of the 2013 Multi-County New Land Owners Educational Series indicated a total of 476 participants of whom 316 responded to the surveys included in the report. Ninety-seven percent of total respondents indicated increased knowledge in at least one subject area covered. Eighty-six percent of total respondents plan to take action or make changes to at least one management practice. Sixty-nine of total respondents anticipated benefit economically as a direct result of attending these programs. Total anticipated economic benefit from this program was $103,346 (Willey, 2013).

Perceptions of Extension Programming Efforts

Young and Cunningham (1977) first began exploring the concept of clientele satisfaction/perception for the Ohio State University Cooperative Extension Service. Since that point in time, Extension has begun employing mechanisms to capture the clientele's customer satisfaction with extension programming and gauge the overall effectiveness of Extension programs. The general findings of the Ohio State study suggest that clientele are satisfied with the content of the educational information received, the delivery methods used by the educators, and the professionalism of

Extension educators and Extension as a whole (Schafer, 2006). Decker and Yerka (1990) and Radhakrishna (2002) note that such input is also beneficial in correcting flaws of sub-par situations, establishing new programs to meet the demands of clientele, and revising existing programs or implementing new ones to meet future expectations of clientele. Extension programming has continued to change with the times in order to remain relevant to its stakeholders and clientele. As Warner and Christenson (1984) wrote: "Society, including agriculture, has changed, and one cannot merely 'turn back the clock' to the agency's early days. Furthermore, it could be argued that Extension's early history was not at all as it is now being portrayed. Extension played a key role in improving agricultural production, but it also stressed improved utilization of resources within the family, personal development, improved quality of life, and the improvement of the total community . . . (p.126)" The perception of Extension programs by clientele tend to be very favorable in Texas. A customer satisfaction rating statewide of over 80% has been reported by the Texas A&M AgriLife Extension office of Organizational Development (AGL Ext. OD, 2014). This seems to be the case nationally as well, as Gloy, Akridge and Whipker (2000) indicated in their study of information sources for commercial farmers, which found that roughly 79% of participants reported information disseminated by Extension as useful. Perceptions of Extension's programming efforts can be tied directly back to the development of a working relationship between the Extension Professional and the participant (King & Rollins, 1995). The more actively engaged the Extension professional is with their clientele, the higher the perception rating seems to be (Pompelli, Morfaw & English, 1995). County Extension Agents are

asked to market and interpret their programs to clientele through a variety of methods. Extension professionals are encouraged to interpret the results of their programs through mass media efforts in local newspapers, television, radio and Internet sources such as social media as well as one-on-one interpretation to various stake holders groups (AGL Ext., 2014).

Perceptions of Extension tend to vary among groups of clientele, especially traditional users of Extension information compared to and those new to agriculture. Many of those new to production practices may simply not have heard of Extension and therefore choose a different pathway for receiving their information about property management (Bardon, Hazel & Miller, 2007). Cartmell, Orr and Kelemen (2006) concluded that more than two-thirds of Oklahoma "limited-scale" landowners did not utilize Extension as a resource. The reason Extension was not utilized was simply for a lack of knowledge of the existence of Extension. As a result, many states are developing outreach programs to target small acreage or new landowners with Extension information. Such programs have become a vital resource for such landowners (Genskow & Blasczyk, 2013).

The Economic Impact of Extension Programs

Extension is a publicly funded entity and as recipients of this public funding, Extension professionals are held accountable by county, state and federal funding partners to report program impacts (Richardson, 1996). Further, program impacts must be delivered to

key decision makers and other stakeholders in order to remain relevant (O'Neill & Richardson, 1999). Government-supported programs such as Extension must demonstrate sufficient public benefits to make them worthy of continuing financial support. Reporting program impacts is vital to Extension and when possible, dollar impact figures should be obtained, "Today, more than ever, money 'talks' in Extension evaluation. Incorporating economic impact assessments into program planning should be a high priority for every Extension educator" (O'Neill, 1998, para. 31). Seemingly all entities that receive public funds are being held accountable and are now attempting to attach a dollar value to their efforts. According to a 2005 report conducted by the Texas State Comptroller, every dollar invested in the state's higher education system eventually returns $5.50 to the Texas economy (TX Comp., 2005).

Measuring economic impact of Extension programming efforts can be accomplished in several ways. The Texas A&M AgriLife Extension Service provides a one page summary of the economic impact for specific programming efforts around the state. A dollar value of money saved by participants as a result of adopting a specific management practice taught in the Beef Quality Assurance (BQA) program, states that approximately 790,000 head of weaned and stocker calves owned or managed by participants in the Texas BQA Program increased gross returns of an estimated at $7.2 million for 2011 as a result of employing practices taught during the course (McCorkle, 2012). Another example of positive economic benefit relates to money saved by local health care system through the application of new found knowledge associated with

developing a healthier lifestyle, such as the Walk Across Texas Campaign. The impact study associated with this program estimated that a potential lifetime health care cost savings was expected to be $63,210 for females and $57,230 for males. When avoidance of lost wages is included, the potential lifetime economic benefit for 2011 participants was $265 million (McCorkle, 2012).

Extension in Texas measures its impact on the economy by measuring the economic impact of specific programs that it conducts across the state, especially those that involve volunteers. One such volunteer program is the "Master Marketer Program." Analysis of survey results indicate that the Master Marketer Program, a 64-hour intensive training program that develops master volunteers who extend the education through marketing clubs, is a valuable Extension program helping producers to better-manage price and production risks. On average, graduates of the program have increased their net income by more than $33,000 annually (McCorkle, Waller, et. al., 2009). There has also been a significant economic impact as the result of the Master Gardener program. Master Gardener volunteers assist Extension professionals by answering gardening phone calls at the county Extension office, working with 4-H youth, conducting workshops, and planting community gardens (Fry, 2006). According to Mayfield and Theodori, (2006), the 2003 Texas Master Gardener Annual Report stated that 5,450 volunteers participated in the Master Gardener program in 110 Texas counties. These volunteers provided a total of 353,643 service hours to Texas A&M

AgriLife Extension, which equates to $5.8 million in economic value to the agency as Full Time Equivalents (FTE's).

Rural Land Ownership in Texas

Privately owned farms, ranches and forestlands account for about 144 million acres in the state of Texas. This equates to about 84% of the state (Wilkins et al., 2003). This percentage of private land in Texas is greater than in any other state. However, rural lands in Texas are undergoing a fundamental change, not with the loss of private ownership, but with the type of land owner. A report issued by the American Farmland Trust, Texas Regional office in 2003, concluded that prices of land aren't driven by what the land can produce, but rather by its scenic and recreational value (Miller, 2006). To further validate this claim, the Texas A&M Real Estate Center noted that no longer are individuals purchasing property just for it's agriculture productivity or as an investment, but rather for its recreational value (Gilliland, 2003). This change has implications for our rural economies, long term agriculture productivity, wildlife habitat and the conservation of our natural resources (Wilkens, Hays, et. al., 2003). In 1900, the population of Texas was about 3 million, 85% of who were rural residents. By 1945, the population of Texas doubled to about 6 million, with 50% urban and 50% rural dwellers. Today, Texas has about 18 million residents, with 82% living in urban areas (Wagoner, 2005). According to the United States Department of Agriculture, from 1982 to 1997 more than 2.2 million acres of rural land in Texas was converted to urban uses, and the annual rate of conversion from 1992-97 was nearly 30 percent higher than in the

previous 10 years (Wilkens, Hays, et. al., 2003). Texas leads all other states in the loss of rural farming and ranching lands (Miller, 2006). Millions of rural acres are becoming fragmented as large properties are divided into smaller parcels. The majority of growth in land ownership has occurred in the acreage parcel sizes of 10-180 acres. In areas that border large metropolitan centers (Dallas, San Antonio and Houston), 65% of new purchases are less than 180 acres (Wagoner, 2005). These properties are often too small for traditional farming, ranching and forestry uses and has created environmental issues (Redmon, et al., 2004).

Who is purchasing rural lands in small parcel sizes leading to fragmentation and potential risk? According to a report issued by the Texas Parks and Wildlife Department (Cook & Armstrong, 2002), urban-based landowners are the primary buyers of small acreage tracts. The report went on to say that in general these new urban-based landowners lack a background in land management and potential problems can occur with limited open space, loss of habitat and productivity. Additional research has also illustrated that individuals with small to mid-sized land parcels generally lack knowledge and training, thus making their lands less productive and more often neglected (Hughes, et al., 2005). Demographic research conducted by Redmon (2004), related to a program targeting novice land managers indicated that few new landowners have any formal training on natural resources, such as the plant-soil-animal interface. He went on to conclude that a lack of knowledge regarding proper natural resource management can lead to poor decision making, resulting in a detrimental economic situation for the owner

themselves. Additionally, Redmon et al. (2004) concluded that if the weekend property consumes too much of their disposable income, landowners can quickly become discouraged with the venture and the property will be sold.

New landowners face many challenges when they begin to manage their properties, especially related to advice on basic management concepts or Best Management Practices (BMPs). New landowners tend to not use the same pathways to information as traditional clientele groups related to the management of their property (Bardon, Hazel & Miller, 2007), and are often socially disconnected from neighbors that could potentially provide useful information (Yngvesson, 1993). These new landowners may not be aware of Extension as a real resource, therefore they must be targeted so they know to recognize Extension as an entity that can assist them with their property management issues, as Wilkins explains; "We need to expand our Extension and outreach programs to landowners of small acreage so they can manage their land to maintain and enhance wildlife, soil, water, trees, and vegetation" (Wilkins, et al., 2000, p. 8).

The Adoption Process and Diffusion

When dealing with a new clientele group, such as new landowners, who may not be accustomed to utilizing Extension as a resource, it is possible they will turn to other avenues for information about property management such as a consultant (Diekmann & Batte, 2011). Still others may seek advice from trade magazines, the Internet, farm

suppliers, neighbors, etc... (Vergot, Israel & Mayo, 2005). However, landowners associate Extension with certain types of knowledge, especially related to traditional land uses and skills (Brunson & Price, 2009). The diffusion of innovation theories developed over a half century ago, provide a useful framework to explain how new ideas and technologies are spread and adopted in a community (Rogers, 2003). Diffusion Theory has its background in the fields of psychology and rural sociology (Beal & Bohlen, 1957). The adoption of an innovation or practice over time by participants in an educational program tends to take on an "S" shaped curve, with only a limited number adopting the practice initially, followed by greater numbers adopting the practice over time and ending with some never adopting the practice at all (Rogers, 1995). Not all persons that participate in a program adopt a new skill or practice at the same time. One of the theoretical foundations used for this study was Rogers' diffusion of innovations. Rogers (1995) defined and described the five stages of the innovation-decision process: knowledge, persuasion, decision, implementation and confirmation. Rogers explains that awareness of an innovation by an individual strengthens their motivation to learn more about the innovation at hand. Many times, the motivation for adoption is directly related to the amount of information that is available and the amount of risk associated with a particular practice (Ngathou, Bukenya & Chembezi, 2006). Clements (1999) noted, many people need time to collect information relevant to their own situation, apply the knowledge presented and practice the skills learned. Some may need encouragement and support in the form of more information, guided practice, and affirmation that they are making progress as they move toward integrating the new competency into their daily

lives. He further concluded that complete adoption of practice does not usually take place in a “one-shot” presentation or workshop, but instead over a period of time (Clements, 1999, para. 1). Still other studies have concluded that a system of sequential learning activities helps to reinforce knowledge that in turn will potentially lead to adoption (Walden & Brown, 2009). The objective of an effective Extension educational program is to help individuals adopt practices that will improve their lives (Clements, 1999). Attempts to motivate each participant, explain the steps in a process, provide resources, and allow time to get started on each step are not enough to ensure behavior change or adoption, according to Prochaska, Norcross, and DiClemente (1994). They went on to explain that behavior change and adoption should be measured after sufficient time has elapsed. County Agents regularly utilize this technique to determine the impacts of educational programs and determine the intent to adopt a particular practice or behavior. An example of how adoption rates should be expressed in a report would typically be as a simple percentage:"34% of participants adopted practice 'X' based on a follow-up survey conducted 'Y' months after the program" (Hubbard & Sandmann, 2007, para. 3).

Statement of the Problem

Documentation of the implementation of best management practices is critical in order to allow for the improvement of the program and to verify that program satisfaction has indeed lead to implementation.

Since 2006, new landowners in South Central Texas with a limited background in agriculture have participated in a series of educational courses that were planned and implemented by the County Extension Agents for Agriculture and Natural Resources in Austin, Colorado, Fayette and Washington Counties. Well over 300 persons per year have come to at least one or more of the Multi County New Landowners Educational series. On average, 90% of the participants in the program indicated that they were completely satisfied with the program and that it met their needs. Eighty-eight percent of the participants indicated that they had a achieved a knowledge level of good or excellent following the program, and 71% indicated they anticipated benefitting economically because of their participation in the program (Pierce et al., 2010).

Previously, there had been little follow-up with the past participants of the Multi County New Landowners Educational Series. Have the past participants implemented one or more of the management concepts taught during the program? Have the past participants actually benefitted economically by their participation in the program? This study sought to identify best management practices that were adopted and describe impacts on participants who attended the program during the time period of 2006-2010.

Purpose

The purpose of this study was to identify the best management practices adopted by participants of the Multi County Landowners Educational Series. The study explored the perceptions of the past participants regarding the role of the Texas A&M AgriLife

Extension Service and to describe the economic impact the program has on participant's operations.

Research Objectives

The specific objectives of this study included:

1. Identify the adoption of key practices taught during the Multi County New Landowner Educational Series;
2. estimate the economic impact of the program on past participants, and
3. evaluate the perceptions of participants of the program on the role of the Texas A&M AgriLife Extension Service.

Methodology

Design

This research project was descriptive in nature, employing both quantitative and qualitative methods. Quantitative data was collected using a Likert-type 5-point scale to measure adoption, attitude, knowledge and perceptions of Extension. Demographic and general use data was also collected. Qualitative data was collected from one-on-one interviews.

Population

Participants in the Multi County New Landowners Educational Series served as the population for this study. Approximately 200 past participants were selected at random

from the list of participants during the time period of 2006-2010 and contacted through email to request to participate in the survey.

Data Collection

Data was collected using an online survey that was emailed to select past participant and one-on-one interviews. Dillmans' (2007), procedures for email and online survey delivery was followed. An email notifying the participants of the upcoming survey was sent to them explaining the project, its intentions, and that a link to the survey instrument would be emailed within a month. The participation email was sent out to the participants and included a link to the survey instrument, enabling participants to complete the survey at their convenience. All emails were sent individually, in accordance with Dillmans' principle 11.2 regarding the personalization of participation email requests (p. 368). Follow-up emails were sent to non- respondents approximately one week after the initial distribution and subsequently every three weeks for nine weeks. All participants' names and email addresses were kept confidential, and thank you emails were sent upon completion of the questionnaire along with a certificate allowing them to receive a free soil test in appreciation for their participation. In addition to the survey, respondents were asked if they would be willing to participate in a one-on-one, face-to-face interview to further add qualitative evidence regarding impacts of the program. Individuals were selected from the list of participants and volunteered to be interviewed.

Definition of Terms

The following is a list of terms utilized throughout this study.

- Best Management Practice (BMPs) - methods or techniques found to be the most effective and practical means in achieving an objective while making the optimum use of the firm's resources.
- Cooperative Research and Extension - a non-formal educational program designed to help people use research-based knowledge to improve their lives. Educational offerings are in the areas of agriculture and natural resources, family and consumer science, community economic development, and youth and 4-H.
- County Agent - a consultant employed jointly by federal, local and state governments to provide information about agriculture, community development, 4-H and youth development and family and consumer sciences.
- Customer Satisfaction - a term frequently used in marketing, is a measure of how products and services supplied by a company meet or surpass customer expectation.
- Economic Impact - a macroeconomic effect on commerce, employment, or incomes produced by a decision, event, or policy.
- Knowledge - the fact or condition of knowing something with familiarity gained through experience or association (Mish, 2001).
- Multi County - consisting of, or pertaining to, more than one county.
- New landowner - a person who recently owns land or began managing a unit of land.

- Past participant - one who has participated, shared, or previously participated in an event program or activity.
- Perception - the conscious understanding of something (Mish, 2001).
- Texas A&M AgriLife Extension Service - a cooperative educational partnership between the USDA, the Texas A&M System and the local County Commissioners Courts.

IDENTIFICATION OF ADOPTION OF KNOWLEDGE AND BEST MANAGEMENT PRACTICES BY PAST PARTICIPANTS OF THE MULTI COUNTY NEW LANDOWNERS EDUCATIONAL SERIES CONDUCTED BY THE TEXAS A&M AGRILIFE EXTENSION SERVICE

Introduction and Literature Review

County Extension Agents and Extension Specialists have a long history of teaching the concepts of Best Management Practices (BMPs) to farmers, ranchers and others for over 100 years (Rogers, 1995). Through the land grant system of teaching, research and extension, agents have been able to glean the BMPs from both resident teaching and research in order to disseminate these concepts to the general population on a large scale, through field days, workshops, applied research and result demonstrations (AGL Ext., 2014). BMPs are defined as prescribed guidelines for producers to follow related to management of such things as water, application and use of soil nutrients, and pesticides producers employ to minimize agriculture's impact on natural resources (Boman, 2012). The advancement of new technologies in agriculture such as the use of mechanization, soil amendments, pesticides, and other technologies have not only increased production, but have helped to protect our environment and our natural resources (Stafford, 1999). It is through the adoption of these technologies and practices that efficiency, effectiveness and environmentally friendly processes can evolve.

Research has shown that there are several factors affecting agriculture producers adoption of BMP. Some of those include economic factors and the availability of information (Drost, et.al., 1996). Other studies have evaluated sustainable farming systems (Lockeretz, 1990; Taylor & Dobbs, 1990) and most have found that farmers adopt sustainable practices or BMP because of their desire to be good stewards of the soil, to reduce ground and surface-water pollution, to produce high quality products with reduced amounts of chemicals, and to reduce health risks to farm families and livestock. According to Coffey, Jennings and Humenik (1998), when farmers are knowledgeable of BMP, and see their positive results, they are motivated to implement them.

Land ownership across Texas is changing, and new landowners tend to have a general lack of knowledge about soil, plant, and animal economic systems (Rowan, 1994). Unlike more established agriculture producers, those new to the land do not have a limited background in agriculture and often times simply do not know what BMP to employ on their property. According to Wilkins et al., (2000), up until 1994, rural lands were dominated by those pursuing an interest in production agriculture. Changes have occurred since 1994 as more and more properties have been purchased by a new group of clientele that viewed property ownership as more of a financial investment with recreational value. According to a Texas A&M Real Estate Center study conducted by Gilliland and Mays (2003), the recreational demand for land is the driving force for the majority of land purchases in Texas.

Extension, both nationally and across the state, has attempted to address the issues facing new landowners. Many Extension professionals have conducted in-depth educational programs focusing on the needs of this new group of property managers. Faculty members from the Texas A&M University Research and Extension center at Overton developed a three day intensive event that targeted the "novice or inexperienced rancher" interested in learning BMP's for soil, plant and animal resources (Redmon, et al., 2004). While in other states such as New York, the Cornell Cooperative Extension Service (CCES) has begun targeting "beginning farmers," with a goal of helping them develop a plan for their property (Ochterski & Frenay, 2010). "Best Management Practices for Beginning Farmer Support" (BMPs for BFS) are techniques and actions preferred by new farmers, straightforward for the educator, and more likely to develop a successful farmer-educator relationship (Ochterski & Frenay, 2010). CCES has developed a resource online module for these farmers as well that helps them to chart their progress, with follow ups from County Agents throughout the year. Other locations across the country, such as the University of Wisconsin Cooperative Extension Service have developed programs that target "unengaged" woodland/forest owners. Wisconsin's statewide Learn About Your Land (LAYL) program targets family forest owners who are "unengaged" with the forestry community and related support programs (Genskow & Blasczyk, 2013). This pilot program attempts to enlighten property managers about the BMPs of Forestry Management. Closer to home, Texas A&M AgriLife Extension Service Agents in Austin, Colorado, Fayette and Washington Counties have developed a comparable program entitled "The Multi-County New Landowners Educational Series."

Meier (1989) noted that Extension programs often have been restricted by geographical boundaries. However, in the future, the need to focus on a more regional Extension structure and approach in the development and delivery of quality Extension education programs may occur. As staffing patterns and available training resources change, multi-county programming will become increasingly important. Meier (1989) concluded that future Extension program planning and delivery are expected to place more emphasis on the educational outcomes of its clientele, for example, the adoption of BMPs. The adoption of BMPs is supported by agriculture producers for various reasons and promoted by Extension professionals, but it is not enough to just know about them; only through the actual adoption of BMPs will their benefit environmentally and economically be realized (Ochterski & Frenay, 2010). The end result of failure to adopt prescribed BMP could lead to mismanagement or non-management, resulting in negative or adverse impacts of a landowners operation and to adjacent properties and even larger landscapes in which the properties are embedded (Wacker & Kelly, 2004).

Methods

The ideal target population for this study was past participants of the 2006 – 2010, Multi County New Landowners Educational Series. The reasoning for using the 2006 – 2010, past participants was based on the premise these individuals have had sufficient time to implement BMPs taught during the previously attended courses. A contact list was developed from past participants who had registered for the entire years' worth of courses, totaling eight sessions. The list was compiled from prior registration

information that was kept on file in the Texas A&M AgriLife Extension Office in Austin County. A review of the list of registrants revealed a sample population of 232 potential participants, who fit the study criteria, based on their registration for the entire eight sessions. A test email was sent to the participants to verify the contact validity and 70 emails were returned as unusable. A second email was sent to the remaining 162 notifying them of the opportunity to participate in the upcoming study. An official announcement that included the survey was sent in July 2012 (n=162). Dillman's email survey dispersion and follow up procedures were utilized for data collection (Dillman, 2007). A total of 70 individuals responded to the survey, yielding a response rate of 43%. Since the initial response rate was below the desired level of 50%, the researcher utilized Method Three of Handling Non Response in Social Science Research (Lindner, Murphy & Briers, 2001) in order to determine if any differences between respondents and non-respondents exists. A random sample of 27 non respondents was contacted via telephone and was asked the questions from the survey. Each of the non-respondents was first asked for their participation consent prior to beginning any questioning and if consent of participation was secured, the survey questions were asked of the non-respondents and results recorded.

Instrumentation

The electronic instrument used to collect data, was comprised of 60 questions divided into three sections. The instrument was designed by the researcher with assistance from the Texas A&M AgriLife Office of Organizational Development. Questions of the

survey instrument investigated the adoption of BMP taught during the 2006-2010, Multi-County New Landowners Educational Series.

The first section of the questionnaire notified the respondent of their option to consent to participate in the study. This was followed by a yes/no question asking them if they had actually participated in the program. If the respondent selected no, they were sent to a screen thanking them for their time and were exited from the survey instrument. If the respondent selected yes, the next question was related to the year in which they took the course. Choices included 2006, 2007, 2008, 2009, 2010, and Do Not Remember. The next question was related to how they were made aware of the course. Choices included Extension Website, Word of Mouth, Brochure/Mailing, Newspaper/Radio, Realtor, and Other (which provided a box for them to specify where they heard about the course). The next seven questions dealt with the respondent's' background and demographic information, such as age, gender, ethnicity, education level, annual income and agriculture background. The final three questions of section 1 were two yes/no questions related to the Texas Department of Agriculture (TDA) Private Applicator License and one question related to the size of acreage currently owned and operated by the respondent.

The second section of the questionnaire consisted of questions using a three, four or five point Likert Scale. The first set of questions was related to the assessment of respondent's perception of the Texas A&M AgriLife Extension Service and was scored

on a four point Likert Scale, (i.e. Strongly Disagree, Disagree, Agree or Strongly Agree). The next two sections of questions were related to the respondent's knowledge gained in the core topics presented in the course. These questions used a five point Likert Scale (i.e. Poor, Fair, Good, Excellent or Did Not attend session). The next two sections of questions directly to the respondent's adoption of BMP taught during the course and their frequency of use of each BMP listed. These questions were also scored on a five point Likert Scale (i.e. Never, Seldom, Often, Always or N/A). The final question set included a series of yes/no questions related to the adoption of prescribed BMP.

Data Collection

All of the participants in the study (n=162) were provided a web link to the survey instrument. Of the 162 participants contacted by email, 33 responded within three weeks of the initial notice being sent, for a response rate of 20%. After three weeks, a follow up email was sent along with the survey link to the non-respondents. This was repeated again three weeks later. After the passage of eight weeks, the survey was closed. A random sample of 27 non respondents was contacted via telephone. The results of the non-respondents were recorded and analyzed for validity against the responses of the participants in the online survey. Significant differences ($p < .05$) were found with regard to the age of the non-respondent as compared to the respondents, as 51.9% of non-respondents were over the age of 65 compared to only 26.2% of respondents. There was also a significant difference between respondents and non-respondents with regard to selectively clearing unwanted brush species, as 87.5% of non-respondents indicated

they did so often or always compared to only 53.7% of respondents. Given that these two characteristics were the only aspects found to be different in the study, the two populations were treated as a group.

Results

A total of eighty-eight persons completed the survey; sixty-one were considered to be original survey respondents and twenty-seven considered to be non-survey respondents. The majority of the participants, 25.3% indicated that they did not remember the year that they attended the course. The next largest percentage, 21.8%, attended the course in 2009, followed by 2008 at 20.7%, then 2010 at 14.9%, 2007 at 9.2% and finally 2006 at 8%. The majority of the participants, (n=34), were made aware of the course by a personal invitation that they received in the mail. Of the 88 respondents, almost half, (46.6%) were between the ages of 55-65 years of age, and 60% of those were male. The majority of participants in the survey, (86.4%), held either a college or post graduate degree, and the respondents annual income for 67.1% of the participants was over $100,000. Almost two-thirds of the participants were not involved in agriculture as a youth; however 59.1% now currently live on a farm or ranch. The majority of the participants (94.3%), considered their ethnicity to be white (non-Hispanic).

Table 1
Description of Survey Participants Related to the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service

Age of Participants	*f*	%
55 or younger	17	14.8
55-65	41	46.6
65 or older	30	34.1
Gender		
Male	52	59.1
Female	36	40.9
Education		
No College Degree	12	13.6
College Degree	41	46.6
Post College Degree	35	39.8
Income Level		
Less than $100,000	26	32.9
More than $100,000	53	67.1
Ethnicity		
White (non-Hispanic)	82	94.3
Hispanic	2	2.2
African American	1	1.1
Other	2	2.3
Ag Background		
Grew up in agriculture	32	36.4
Did not grow up in agriculture	56	63.6

More than half of the responding participants (68.2%) indicated that they did not hold a TDA Private Pesticide Applicators license. Of the 28 participants that indicated that they currently have a TDA Private Pesticide License, 46.4% indicated that they obtained their license as a result of their participation in the Multi County New Landowners Series.

Table 2
Description of Survey Participants related to the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Regarding Pesticide License Status

Private Pesticide Applicator (N=88)	*f*	%
Yes	28	31.8
No	60	68.2
Private Pesticide Applicator as a result of the course		
Yes	13	46.4
No	15	53.6

Three-fourths of the responding participants reported currently owning or managing 100 acres or less, while 23.9% owned or managed 101- 400 acres. Only one participant in the survey reported currently owning more than 400 acres.

Table 3
Description of Survey Participants Related to the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Regarding Land Owned and Managed

Amount of Land (N=88)	*f*	%
100 acres or less	66	75.0
100 - 400 acres	21	23.9
Over 401 acres	1	1.1

Survey results reinforced information discussed in the literature by Schafer (2006), that Extension was viewed very favorably by the participants. The participants were asked for their levels of agreement to certain questions related to their perception of the Texas A&M AgriLife Extension Service. Those questions were scored on a four point Likert scale (i.e. strongly agree, agree, disagree, or strongly disagree). Table 4 suggests that a majority of the participants (97.7%) indicated that they strongly agreed or agreed that the information that they received from the Texas A&M AgriLife Extension Service is very informative. Ninety-five percent of the participants indicated that they viewed the Texas A&M AgriLife Extension Service as an asset for new landowners. Ninety-two percent strongly agreed or agreed that they utilized the Texas A&M AgriLife Extension Service as a resource for answering questions about their property. And, 95.5% strongly agreed or agreed with the statement that information they received from the Texas A&M AgriLife Extension Service is accurate and unbiased.

Table 4

Responses by Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service to Level of Agreement Statements

Statement	SD *f* %	D *f* %	A *f* %	SA *f* %	NR *f* %	M	SD	Total
I found the information I received from the Texas A&M AgriLife Extension Service to be very informative	2 2.2	0 0	23 26.1	63 71.6	1 .01	3.58	.769	88
I view the Texas A&M AgriLife Extension Service as an asset for new land owners	2 2.2	2 2.2	15 16.9	69 78.4	1 .01	3.53	.841	88
I utilize the Texas A&M AgriLife Extension Service as a resource for questions about my property	3 3.4	4 4.5	30 34.1	51 58.0	1 .01	3.25	1.000	88
I believe the information I receive from the Texas A&M AgriLife Extension Service to be accurate and unbiased	2 2.2	2 2.2	28 31.8	56 63.6	1 .01	3.53	.841	88
Grand Mean for level of agreement						3.47	.863	

Responses: SD (strongly disagree)=1, D (disagree)=2, A (agree)=3, SA (strongly agree)=4, NR (No Response)

In order to determine if significant differences existed ($p < .05$) between the means of groups, an independent t-test was conducted to measure differences between gender, income level, background in agriculture, pesticide license status and if the participant currently resides on a farm or ranch, as it relates to the participants' perception of the information they received from the Texas A&M AgriLife Extension Service being very informative. The results of the t-test shown in Table 5 reveal that there were no significant differences ($p < .05$) between any of the dichotomous variables as they

related to the information received by the participant from the Texas A&M AgriLife Extension Service.

Table 5

Comparison of Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Related to Information Received from the Texas A&M AgriLife Extension Service to be Very Informative

Variable Name	Group	Mean	t value	df	Sig (2 tailed)
Income (n=68)	<$100,000 >$100,000	3.80 3.66	.756	66	.452
Ag Background (n=88)	Yes No	3.69 3.66	.200	86	.842
Gender (n=88)	Male Female	3.62 3.75	-1.033	86	.304
Pesticide License (n=88)	Yes No	3.61 3.70	-.673	86	.503
Live on a Farm or Ranch (n=88)	Yes No	3.67 3.67	.049	86	.962

The first step in the five staged innovation-decision process according to Rogers (1995) is knowledge; therefore the knowledge level of the participants on specific practices taught during the new landowner's course was of particular importance to this research. In order for the participants to adopt a certain best management practice they must first have knowledge of that practice prior to the decision to adopt that practice. Participants were asked to rate their level of knowledge of certain best management practices that were taught during the new landowner course. A four point Likert scale was utilized to rate of knowledge as a result of participation in the course. Options included excellent,

good, fair or poor. Participants in the survey were also given the options to choose "did not attend the session," and their input was recorded as a missing value in the data.

Table 6

Knowledge Level of Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Related to Core Subjects Taught

Statement	P *f* %	F *f* %	G *f* %	E *f* %	DNA *f* %	M	SD	Total
Options for qualifying for an Agriculture Valuation	0 0	2 2.2	35 43.2	44 54.3	9 10.1	3.58	.507	81
Requirements for maintaining an Agriculture Valuation	0 0	2 2.5	30 38.0	47 59.5	6 6.7	3.53	.612	79
Soil Fertility	1 1.1	12 15.2	49 62.0	17 21.5	9 10.1	3.21	.535	79
Options for controlling brush and weeds	2 2.6	12 15.4	38 52.8	21 26.9	10 11.2	3.11	.737	78
Concepts of Prop 11 Wildlife Tax Valuation	5 5.6	9 10.1	43 55.1	20 27.8	16 18.0	2.95	.911	72
Brush Identification	4 5.5	21 26.9	43 55.1	14 17.9	15 16.9	2.95	.703	78
Managing Forages for Hay Production	6 9.1	9 13.6	34 51.5	17 25.8	22 24.7	2.95	.911	66
Pond Management	4 5.7	13 18.6	37 52.9	16 22.9	18 20.2	2.95	.848	70
Weed Identification	6 8.1	10 13.5	43 58.1	15 20.3	14 15.7	2.89	.937	74
Wildlife Habitat Management	0 0	13 17.8	42 57.5	14 19.2	10 11.2	2.89	1.049	73
Grass Selection	5 6.8	20 27.0	33 44.6	16 21.6	14 15.7	2.84	1.068	74
Forage Fertility and Management	4 5.4	18 24.3	35 47.3	17 23.0	14 15.7	2.84	.834	74
Native Range Evaluation	5 6.8	15 20.5	36 49.3	17 23.3	15 16.9	2.79	.976	73

Table 6. Continued

Statement	P *f* %	F *f* %	G *f* %	E *f* %	DNA *f* %	M	SD	Total
Pecan Management	8 15.7	14 27.5	19 37.3	10 19.6	37 41.6	2.53	1.073	51
Growing Pierce's Disease Resistant Wine Grapes	14 31.8	8 18.2	10 22.7	12 27.3	44 49.4	2.37	1.212	44
Grand Mean						2.77	1.356	

Responses: P (Poor)=1, F (Fair)=2, G (Good)=3, E (Excellent)=4, DNA (Did Not Attend)

As Table 6 indicates, the majority of the participants rated their knowledge levels of core subjects taught during the course as Good or Excellent in 14 of the 15 core subject areas. The exception was in the subject area of Growing Pierce's Disease Resistant Grapes, where only 50% of the participants rated themselves as having Good or Excellent Knowledge. The highest level of knowledge indicated by participants was related to their understanding of the Options for Qualifying for an Ag Valuation and Requirements for Maintaining an Ag Valuation with 97.5% participants rating themselves as having Good or Excellent knowledge of these two core subjects.

Independent Sample t-test was conducted to determine if there were significant differences ($p < .05$) between the means of groups as they related to Income Level, Ag Background, Gender, Pesticide License status and if the participants currently live on a farm or ranch. Table 7 reveals no significant differences ($p < .05$) between any of the dichotomous variables as related to concepts of Growing Pierce Disease Resistant Grapes.

Table 7
Comparison of Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Related to Knowledge of Proposition 11 Wildlife Tax Valuation

Variable Name	Group	Mean	t value	df	Sig (2tailed)
Income (n=33)	>$100,000 <$100,000	3.17 2.37	1.431	31	.162
Ag Background (n=44)	Yes No	2.52 2.37	.408	42	.686
Gender (n=44)	Male Female	2.31 2.67	-.927	71	.357
Pesticide License (n=44)	Yes No	2.46 2.45	.025	42	.981
Live on a Farm or Ranch (n=44)	Yes No	2.35 2.52	-.438	42	.664

Adoption of Best Management Practices by the participants in the study is the main focus of this study. Participants of this study were asked to rate their level of adoption of certain best management practices taught during the Multi County New Landowners Educational Series. A four point Likert scale (i.e., always, often, seldom or never), allowed respondents to rate their level of adoption as a result of their participation in the course. Participants were also given the options to choose "not applicable," and their input was recorded as such in the results.

Table 8 reveals that the lowest level of adoption listed was for the utilization of forage testing to determine price and value or as a marketing tool to sell hay, with a mean of 1.42. It should also be noted that this question had the second fewest responses, as well, with 60 total respondents. The next lowest mean of (1.68) was also related to the use of forage testing to determine the quality of hay or forages. The two highest mean scores were related to the participant's' ability to apply pesticides according to label directions (3.32) and their use of non-chemical forms of weed and brush control (3.16).

Table 8

Level of Adoption by Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service

Statement	N *f* %	S *f* %	O *f* %	A *f* %	NA f %	M	SD	Total
Applying pesticides according to label directions	4 5.6	3 4.2	7 9.7	58 80.6	16 18.0	3.32	1.057	72
Use of non-chemical methods of weed and brush control	2 2.4	10 11.8	30 35.3	43 50.6	3 3.4	3.16	.958	85
Utilization of wildlife management concepts to improve habitat for native species	5 6.3	14 17.7	39 49.4	21 26.6	9 10.1	2.95	.780	79
Utilization of information on brush control to selectively clear unwanted brush species	7 9.0	32 40.0	25 31.3	13 16.3	10 11.2	2.63	1.012	78
Utilization of soil tests to properly apply fertilizer	10 12.5	32 40.0	25 31.3	13 16.3	7 7.9	2.47	.841	80
Utilization of pond management concepts to identify and control aquatic weeds	14 20.9	16 23.9	25 37.3	12 17.9	21 23.6	2.26	1.046	67
Utilization of Range Condition Evaluation Tool to properly stock	19 31.7	10 16.7	19 31.7	12 20.0	28 31.5	2.16	1.015	60

Table 8. Continued

Statement	N *f* %	S *f* %	O *f* %	A *f* %	NA *f* %	M	SD	Total
Utilization of the Appraisal District as a resources	17 20.7	40 48,8	21 25.6	4 4.9	6 6.7	1.84	.834	82
Utilization of forage testing to determine the quality of my hay or forages	34 50.0	25 28.1	8 11.8	1 1.1	20 22.5	1.68	.671	68
Utilization of the Extension Fruit and Nut Spray Schedule when applying pesticides to fruit crops	23 51.1	7 15.6	12 26.7	3 6.7	43 48.3	1.68	.885	45
Utilization of forage testing to determine price and value or as marketing tool to sell hay	39 65.0	15 25	5 8.3	1 1.7	20 22.5	1.42	.692	60
Utilization of the Extension Fruit and Nut Spray Schedule when applying pesticides to fruit crops	23 51.1	7 15.6	12 26.7	3 6.7	43 48.3	1.68	.885	45
Utilization of forage testing to determine price and value or as marketing tool to sell hay	39 65.0	15 25	5 8.3	1 1.7	20 22.5	1.42	.692	60
Grand mean						2.32	.890	
Responses: N (Never)=1, S (Seldom)=2, O (Often)=3, A (Always)=4, NA (Non Applicable)								

Independent Sample t-test was conducted to determine if there were significant differences ($p < .05$) between the means of groups as they related to Income Level, Ag Background, Gender, Pesticide License status and if the participants currently live on a farm or ranch. Table 9 reveals that there was a significant difference ($p < .05$) between

one of the dichotomous variables as related to the utilization of soil tests to properly apply fertilizer and gender.

Table 9
Comparison of Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Related to the Utilization of Soil Tests to Properly Apply Fertilizer

Variable Name	Group	Mean	t value	df	Sig (2tailed)
Income (n=61)	> $100,000 < $100,000	2.80 2.48	.1.177	59	.244
Ag Background (n= 80)	Yes No	2.52 2.37	.157	78	.876
Gender (n=80)	Male Female	2.70 2.26	2.131	78	.036*
Pesticide License (n=80)	Yes No	2.69 2.43	1.225	78	.224
Live on a Farm or Ranch (n=80)	Yes No	2.65 2.31	1.614	78	.111
* significant at $p < .05$					

The size of property that is currently managed or owned can impact needs. In order to determine if there was a significant difference with the number of acres owned by the participants and the practices adopted, a regression analysis was performed for interval level data for dependent and independent variables. The number of acres owned or managed by the participants was used as the independent variable with the level of adoption of each practice used as the dependent variable. Table 10 reveals some

significant differences ($p < .05$) between the levels of adoption certain practices and number of acres owned or managed.

Table 10

Regression Analysis by Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Related to Level of Adoption and Number of Acres Owned and Managed

Dependent Variable	SS	df	F	Sig.
Using the Appraisal District as a resource	1.627	1	2.538	.130
Soil Tests to properly apply fertilizer	1.146	1	1.681	.212
Selective clearing of unwanted brush	4.872	1	6.114	.024*
Forage testing to determine the quality of my hay or	3.509	1	12.980	.002*
Applying pesticides according to label directions	.504	1	.437	.517
Non-chemical methods of weed and brush control	1.079	1	1.187	.291
Pond management concepts to identify and control aquatic weeds	1.262	1	1.164	.296
Wildlife management concepts to improve habitat for native species	.286	1	.457	.508
Forage testing to determine price and value or as marketing tool to sell hay	4.786	1	21.156	.000*
Using the Extension Fruit and Nut Spray Schedule pesticides to fruit crops	.725	1	.922	.350
Range condition evaluation to properly stock pastures	3.294	1	3.595	.075

* significant at $p < .05$

Significant differences *($p<.05$)* were found in the interval level data for the independent variable number of acres owned or managed and the dependent variable of forage testing to determine price and value or as marketing tool to sell hay. In addition, there was a significant difference between the participant's' level of adoption of forage testing to

determine the quality of hay and forages and the number of acres owned or operated. Other significant differences occurred between the number of acres owned and operated and the participant's' adoption of selective clearing of unwanted brush species.

To further investigate the concept of adoption of best management practices by the participants, a series of yes/no questions were asked related to core concepts taught during the Multi-County New Landowners Educational Series. Significant levels of adoption were found in the areas of soil testing, where 81.9% of the respondents indicated that they had done a soil test. In addition, 73.3% of the respondents had planted or identified native grasses or plants on their property. Conversely, there were also very low levels of adoption in certain areas surveyed. Participants had very low levels of adoption (16.4%) with forage testing of hay, and there were very low levels of adoption (23.3%) by participants in utilizing the United States Department of Agriculture-Natural Resource Conservation Services (USDA-NRCS) Environmental Quality Incentives Program (EQIP). Rate of adoption was also very low (25.3%) in the use of photo monitoring to record changes over time to the property. Table 11 illustrates the levels of adoption of certain best management practices taught during the course.

Table 11
Adoption of Best Management Practices by Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service

Statement (N=88)	Yes %	No %	Total
I have taken a soil test.	68 81.9	15 18.1	83
I have taken a forage test on my hay.	11 16.4	56 83.6	67
I have conducted a wildlife census.	33 42.9	44 57.1	77
I have planted fruit/nut varieties suited for the area.	47 61.0	30 26.7	77
I have planted or identified native grasses or plants.	63 73.3	23 26.7	86
I have utilized photo monitoring to record changes.	20 25.3	59 74.7	79
I have utilized the USDA-NRCS EQIP program to promote range health.	17 23.3	56 76.7	73
I have utilized the http://aquaplant.tamu.edu website.	33 45.8	39 54.2	72
I have registered a brand with the county clerk.	23 46.0	27 54.0	50
I have developed a written lease agreement.	34 53.1	30 46.9	88

What are the factors that could potentially influence the adoption of certain best management practices by the participants? Could a participant's' age, income level, agricultural background, gender, or current residence influence the rate or level of adoption? A cross tabulation of nominal level data for independent and dependent variables was utilized to determine if there were significant differences among groups

related to specific best management practices adopted by participants. Fisher's Exact Test for 2X2 factorial tables was used to evaluate each of the variables related to adoption. There was a significant difference in the level of adoption concerning conducting a soil test and the year the participant took the course, as 93.3% of the participants that took the course 2008 or prior had taken a soil test, while only 75.0% of participants had done so in the 2009-2010 program. In addition, those that currently lived on a farm or ranch were more likely to have conducted soil test. Over ninety-percent of those identifying themselves as currently living on a farm or ranch had conducted a soil test, while only 68.6% of those that did not currently live on a farm or ranch had conducted a soil test. No significant difference existed among the other variables.

Conclusions and Implications

Land ownership in Texas has been changing for the past 20 years and continues to change. Wilkens, et al. (2003) indicated that there is a new group of clientele who have been purchasing rural lands in Texas since 1994, and are less interested in it's productive value and more interested in its recreational value and aesthetic beauty. The data from this study has illustrated the demographics of this new group of rural landowners, as typically highly educated, having sufficient income to purchase property, and less likely to have an agricultural background. A little more than half currently reside on a farm or ranch. This study validates earlier work by Wagoner (2005) that properties being

purchased are becoming smaller and more fragmented, as this study found, the majority of properties owned or managed by the respondents were just over 100 acres in size.

Based on the findings of the study, it was concluded that the Texas A&M AgriLife Extension Service is held in high regard by this clientele group. Extension is viewed by new landowners as a respected information source for answering questions about property management, and as an asset for new landowners that provides them with unbiased, researched-based information. The findings in this study would seem to compliment the earlier work conducted by King and Rollins (1995), that reported that Extension programming that is targeted towards new landowners seems to be doing a good job of providing knowledge to new landowners. According to this study, new landowners gained the most knowledge on the subjects of options for qualifying for an ag valuation and the requirements for maintaining an ag valuation on their property. These subjects are taught during the first session of the program, and individual best management practices for specific subjects follow. It would seem natural that adoption rates would vary based on the participants' level of interest and goals for their property. It is interesting to note that the participant's level of adoption was very low related to their utilization of the local Appraisal District as a resource.

A primary purpose of this study was to identify the adoption of key best management practices by past participants of the Multi County New Landowners Educational Series. According to Clements (1999), following up with program participants to determine a

behavioral change to show program success should be of interest to all Extension professionals. Extension is helping to educate new landowners on best management practices and facilitating adoption. Based on the data collected from this survey, many core best management practices taught during the new landowner program had very high adoption rates. Earlier research conducted by Redmon, et. al (2004) indicated a need for proper natural resource management education for the beginning farm and ranch owner. Two of the highest levels of adoption indicated by the participants in this study were the ability to read and follow pesticide label directions and the use of non-chemical control for brush and weeds. This would indicate that the Multi County New Landowners Educational Series is, indeed, assisting with the adoption of best management practices that will help protect natural resources and agrees with Redmon et. al., (2004). There was some correlation between the year in which the participant took the course and certain adoption rates such as conducting a soil test on their property. The participants in the study that took the class between the years of 2006-2008 had a higher rate of adoption on this practice than those that completed the class from 2009-2010. There are two possible reasons for the differences. The first reason for higher adoption rates would stand to further validate Rogers (1995) diffusion theory that not all persons that participate in a program adopt a new skill or practice at the same time. Another possible reason could be related to the economic slowdown that occurred in 2009-2010 and the increased natural gas prices that adversely affected the cost of fertilizer. This was indicated by the high level (81.9%) of participants that indicated they had taken a soil test, however, only 47.6% indicated that they had utilized a soil analysis to properly

apply fertilizer on their property. Study results also indicate the existence of a very low level of adoption for specific BMPs, such as conducting a forage analysis. Possible reasons for the low mean scores from the participants related to forage could be that not all responding participants are involved in hay or livestock production. Use of the Extension Fruit and Nut Spray Schedule to properly apply pesticides to fruit crops also had a low mean (1.68). Forty-five responding participants chose to answer this question. One possible reason for the low response rate and lower mean score could be that not all participants grow fruit crops, and some of those that do might select to be pesticide free or organic, and thus have no need to apply pesticides. Reading and following pesticide label directions is a concept taught not only through the Multi County New Landowners Educational Series, but in almost all Extension educational programing efforts that deal with management and use of pesticides. The higher mean score for the non-chemical forms of weed and brush control adoption could be attributed again to the participant's possible reluctance to use pesticides and remain organic in the management of their property. Review of responses to adoption of BMPs reveals that the program may benefit through a critical review of topics of focus.

Recommendations

Conclusions lead to the recommendation to continue to promote educational programs to new landowners since this is an ever increasing clientele group that is looking for knowledge about property management, and they may not utilize Extension as a resource (Bardon, Hazel & Miller, 2007). Survey participants were asked to fill out a text box detailing any possible changes that could be made to the program. According to data collected, offering a refresher course to those that had previously attended a new landowner course or perhaps an advanced training should be considered. Further data collected by this method indicated that possible development of more web based training is another option for those that are still in the work force and unable to attend a face-to-face Friday afternoon program. Future studies should be considered that group the survey participants into certain land management types, such as livestock producer, forage producer, wildlife or game manager.

ECONOMIC IMPACTS ON PAST PARTICIPANTS OF THE MULTI COUNTY NEW LANDOWNERS EDUCATIONAL SERIES CONDUCTED BY THE TEXAS A&M AGRILIFE EXTENSION SERVICE

Introduction and Literature Review

Organizations that receive public monies are held accountable (Franz, 2011). In fact, many entities that are not fund generators are now placing a monetary value on programming outcomes, in an effort to secure recognition for efforts conducted with governmental funding sources. An example of this is higher education. According to a report issued by the Texas State Comptroller's office in 2005, every dollar invested in the state's higher education system eventually returns $5.50 to the Texas economy (Tx. Comp., 2005). As an entity that receives public funding from the County, State and Federal Levels, Extension is required to report program impacts to its stakeholders such as those in government, as well as, those in key positions in each of the counties impacted by Extension Programs (Richardson, 1996). Evaluating program impact through formal methods enables Extension to better communicate program value (Davis, 2012). An important reason for reporting these impacts to key decisions makers is to show the program relevance and to reach the intended audiences that the programs are intended to reach (O'Neill & Richardson, 1999). According to O'Neill (1998), not only is evaluation of programing efforts important to Extension, but so is measuring the

economic impact by placing a dollar value to the effort. O'Neill goes on to further conclude that programs that receive government funding, such as Extension, must demonstrate sufficient public benefits to make them worthy of continued financial support.

A summary of the economic impact for specific Extension education programming efforts is compiled annually in most states. Some impacts are reported by placing a dollar value on money saved by participants as a result of adopting specific management practices. Extension in Texas reports its economic value to its stakeholders through annual Economic Impact Briefs (McCorkle, 2012). One such report, evaluated participants in the Beef 706 program, an educational program that teaches beef cattle producers about the true value of the beef they produce from the ranch to the rail. The report analyzed the responses of cattle producers representing some 98,000 head of cattle in the state. They indicated a potential increase in net returns in 2011 of $2.2 million or $23.15 per head increase in value (McCorkle, 2012). In another of example of program impact, diabetes education programs reached more than 1,100 participants in the state of Texas in 2011. The results of the program indicated an estimated potential lifetime healthcare cost savings and improved productivity of the participants was an estimated $70.3 million (McCorkle, 2012).

Economic impact is also reported and interpreted by Texas Extension Agents in each county through the Making A Difference Document. The collective county documents

are compiled into an annual report generated and used to interpret program outcomes to stakeholders and legislators (AGL Ext. OD, 2014). Examples of program impact from the 2013 report included a $1,706,519.25 economic impact by participants of a series of educational programs in McLennan County related to row crop production (McLelland, 2013), and an estimated economic impact of $278,770, for a Brazos County programming effort entitled "The Demonstration Idea Garden" (Tittle, 2013).

Economic impact and public value statements are often used by extension when measuring the value of trained volunteers. Assessing the economic value of volunteer time to the organization is one approach to determining a return on investment (Hutchins, Seevers, & Van Leeuwen, 2002). The 4-H and Youth Development program relies heavily on volunteers to reach youth with educational programs. These volunteers are an integral part of the 4-H program. According to National 4-H Council (1999), there were 534,295 volunteers donating their time and resources to the 4-H program. Hutchins, Seevers and Van Leeuwen (2002) studied the economic value associated with time volunteered by the average 4-H adult leader in New Mexico. The study assigned a dollar value to the time donated by volunteers over a one-year period. It was determined that the average volunteer contributed $5,283.85 worth of time on an annual basis, and all volunteers in New Mexico collectively contributed over $6.5 million over a four year time frame (Hutchins, Seevers, & Van Leeuwen, 2002).

Researchers in Florida have been able to attach economic data to 4-H livestock projects through the use of a software program entitled Impact Analysis for Planning, IMPLAN (Harder & Hodges, 2011). The authors calculated the economic value of 4-H livestock projects submitted in record books. These researchers discovered strong support for using IMPLAN for 4-H to estimate economic impact. One such example related to nine beef projects, with expenses totaling $12,683. IMPLAN estimated the revenue generated from these members' purchases to be $26,149 (Harder & Hodges, 2011).

Master Volunteer Programs are one tool that publicly funded organizations such as Extension can use to reduce costs (Schrock, Meyer, Asher, & Snyder, 2000). The Master Gardener program is a volunteer program developed Washington State Cooperative Extension and adopted by Texas Extension to help extend the outreach education to clientele related to horticulture (Fry, 2006). The program requires participants to receive 50 hours of specialized training in horticulture related subject matter and then asks the trained volunteer to donate at least 50 hours of volunteer time back to the community. In 2006, there were 115 individual county based Master Gardener programs with 5,038 trained volunteers that provided 395,422 hours of volunteer time to Extension educational projects. This volunteer service, equivalent to 195 full-time employees, increases the human capacity of Extension by 15 percent. The economic value of this service translates to a $7.2 million benefit to the State of Texas (Fry, 2006).

Another Master Volunteer program coordinated by Extension in partnership with another state agency, Texas Parks and Wildlife, is the Texas Master Naturalist program. The mission of this program is to develop a corps of well-informed volunteers to provide education, outreach, and service dedicated to the beneficial management of natural resources and natural areas within their communities for the State of Texas (Hagerty, 2014). The program, much like the Master Gardener program, requires class room training and volunteer time. According to their annual report, volunteers of this program have provided over 178,593.37 hours of service, equaling over $4 million to the state of Texas (Hagerty, 2014).

In 2001 the University of Minnesota Extension began using basic economic principles to help determine public value of Extension (Kalambokidis, 2007). Public value is defined as “The value of a program to those who do not directly benefit from the program" (Kalambokidis, 2007, pg. 12). The concept of public value differs from private gain or personal value program participants directly receive from Extension education, includes such things as knowledge gain or behavior change, in that it involves the value of the effort the community as a whole. One way to assess economic/financial impacts of educational programs to individuals and the public as a whole is to directly inquire through use of survey instruments or interviews with participants. Respondents are asked to estimate a dollar value for improved practices, which can be compared with time value calculations (O'Neill, 2008). Extension can then summarize these financial impacts in brief statements illustrating the dollar value of knowledge gain or behavior

change to the individuals and their operations, as well as, the overall value to the public as a whole resulting from the educational effort. There is a need to know the economic impact of the Multi-County New Landowners Educational Series.

Methods

The ideal target population for this study was the past participants of the 2006 – 2010, Multi County New Landowners Educational Series. The reasoning for using the 2006 – 2010, past participants is based on the premise that these individuals had sufficient time to implement at least some of the BMPs taught during the series. A contact list was developed of the past participants who had signed up for the eight sessions in the program. The list was compiled from prior registration information that was kept on file in the Texas A&M AgriLife Extension Office in Austin County. After going through the list of names and compiling a panel of potential participants, a total of 232 names were identified to match the criteria. A test email was sent to the participants to check the contact validity and 70 emails were returned as unusable. The second email was sent to the 162 remaining individuals notifying them of their opportunity to participate in the upcoming study. An official announcement that included the survey link was sent in July of 2012 (n=162). Dillman's email survey dispersion and follow-up procedures were utilized for data collection (Dillman, 2000). A total of 70 individuals responded to the survey, yielding a response rate of 43%. Since the initial response rate was below the desired level of 50%, the researcher utilized Method Three of Handling Non-Response in Social Science Research (Lindner, Murphy, & Briers, 2001) in order to determine any

existing differences between respondents and non-respondents. Random samples of 27 non-respondents were contacted via telephone and were asked the questions from the survey. Each of the non-respondents was first asked for their consent to participate in the survey prior to beginning any questioning. The results of the non-respondents were recorded and analyzed for validity against the responses of the participants in the online survey.

Instrumentation

The electronic instrument used to collect data was comprised of 60 questions divided into three sections. The instrument was designed by the researcher with assistance from the Texas A&M AgriLife Extension Service Office of Organizational Development. Questions on the survey instrument investigated the adoption of BMPs that were taught during the course.

Section one of the questionnaire notified the respondent of their consent to participate in the study. This was followed by a yes/no question confirming their participation in the program and recording the year in which they took the course. Choices included 2006, 2007, 2008, 2009, 2010, and Do Not Remember. A question was related to how they were made aware of the course. Choices included Extension Website, Word of Mouth, Brochure/Mailing, Newspaper/Radio, Realtor, and Other (i.e. a box for them to specify where they might have heard about the course). This section closed with a series of seven questions dealing primarily with the respondent's' background and demographic

information, including age range, gender, ethnicity, education level, annual income and agriculture background.

Section 2 included a series of questions to determine the perceived economic benefits to the respondents as a direct result of their participation in the course. A yes/no question were presented asking the respondent if participation in the course had led to an economic benefit on their agricultural operation. If the respondent answered no, they were directed to the last section of the survey and the final two questions in the survey which included text boxes allowing the respondent to expound on significant benefits or changes they had made as a result of their participation in the course and what improvements could be made to future course offerings. If the respondent chose yes, the next screen asked for a dollar value per acre, per year of benefit based on the participants' adopted change as a result of participating in the course. Possible choices included $1-$9, $10-$20, $30-$49 or more than $50. This question was followed by a yes/no question related to the increase in value to the respondents' property. If the respondent answered no, they were then directed to the last section and final two questions alluded to above. If the respondent selected yes, then they were asked to estimate the increase in value per acre their property had experienced.

Data Collection

All of the participants in the study (n=162) were provided a web link to the survey instrument. Of the 162 participants contacted by email, 33 responded within three weeks of the notice being sent, for an initial response rate of 20%. After three weeks, a follow up email was sent along with the survey link to the non-respondents. This was repeated three weeks later. After a total of eight weeks the survey was closed. At this point, a random sampling of 27 non-respondents was conducted to compare their responses with those responding to the email survey. The results of the non-respondents were recorded and analyzed for validity against the responses of the participants in the online survey. Significant differences were found $(p < .05)$ with regard to the age of the non-respondent as compared to the respondents, as (51.9%) of non-respondents were over the age of 65 compared to only (26.2%) of respondents. There was also a significant difference between respondents and non-respondents with regard to selectively clearing unwanted brush species, as (87.5%) of non-respondents indicated they did so often or always compared to only (53.7%) of respondents. Given that these two characteristics were the only significant difference, the two populations were combined and treated as one population.

Results

A total of 88 persons completed the survey; 61 were considered to be original survey respondents and 27 considered to be non-respondents. The majority of the participants (25.3%) indicated that they did not remember the year that they attended the course. The next largest percentage, (21.8%), attended the course in 2009, followed by 2008 at 20.7%. The majority of the participants, *(*n=*34)*, were made aware of the course by the personal invitation that they received in the mail. Of the 88 participants, almost half (46.6%) were between the ages of 55-65, and 60% of those were male. The vast majority of participants in the survey, (86.4%), held either a college or post graduate degree, or annual incomes levels for 67.1% of the participants were over $100,000. Almost two-thirds, (63.6%) of the participants did not grow up involved in agriculture; however, 59.1% now currently live on a farm or ranch. The majority of the participants (94.3%), considered their ethnicity to be white (non-Hispanic). Seventy-five percent of the participants currently owned or managed 100 acres or less, while 23.9% owned or managed 101- 400 acres. Only one participant in the survey reported currently owning more than 400 acres.

Table 12

Demographic Breakdown of Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service

Age of Participants	*f*	%
55 or younger	17	14.8
55-65	41	46.6
65 or older	30	34.1
Gender		
Male	52	59.1
Female	36	40.9
Education		
No College Degree	12	13.6
College Degree	41	46.6
Post College Degree	35	39.8
Income Level		
Less than $100,000	26	32.9
More than $100,000	53	67.1
Ethnicity		
White (non-Hispanic)	82	94.3
Hispanic	2	2.2
African American	1	1.1
Other	2	2.3
Ag Background		
Grew up in agriculture	32	36.4
Did not grow up in agriculture	56	63.6
Amount of Land Owned or Managed		
100 acres or less	66	75.0
100 – 400 acres	21	23.9
Over 401 acres	1	1.1

Participants in the survey were asked if they perceived an economic benefit to their agriculture operation by participating in the course. A majority (89.8%) of the participants answered yes, indicating they did perceive an economic benefit due to their participation in the Multi County New Landowners Educational Series. Of those participants, 26.7% estimated their economic benefit to be $1.00-$9.00 per acre, while 33.3% of the participants estimated their economic benefit to be $10.00-$29.00 per acre. Twelve percent estimated their economic benefit to be $30.00-$49.00 per acre, and 28.0% estimated that their economic benefit was more than $50.00 per acre. Utilizing the midpoint of the ranges in the table below, the mean per acre economic benefit was $26.57 per acre. If you apply that mean to the mean number of acres per participant, the total annual economic benefit per participant is $2,736.51.

Table 13
Estimated Economic Benefit to Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service Related to Agricultural Operation

Estimated value per acre	*f*	%	Mean economic benefit/Acre
$1.00 - $9.00	20	26.7	$5.00
$10.00 - $29.00	25	33.3	$19.50
$30.00 - $49.00	9	12	$39.50
$50.00 or more	21	28.0	$50.00
Grand Mean Economic Benefit/Acre			$26.57

Participants were asked if they believed that the practices that they changed or adopted as a result of their participation in the Multi County New Landowners Educational Series had increased the value of their property. An overwhelming 93.1% of the participants indicated an increase in the value of their property as a result of the practices that they had changed or adopted following their participation in the Multi County New Landowners Educational Series. The participants were given the opportunity to estimate how much their property had increased in value on a per acre basis as a result of their participation. Estimates by the participants ranged from a low of $0.00 to a high of $4,000 per acre. The average number of acres owned or managed by the participants (N=87) was 103.30 acres, with the smallest property reported to be 10 acres and the largest reported to be 1,649 acres. Of the 42 persons that entered a valid estimate of

economic benefit per acre, the average economic benefit per acre was $648.69. The average total economic benefit per acre for all participants was $67,009.68.

Table 14
Estimate of Per Acre Value Increase to Past Participants of the Multi County New Landowners Educational Series Conducted by the Texas A&M AgriLife Extension Service

Dollar value increase per acre	*f*	%
$0.00 - $50.00	9	21.4
$51.00 - $100.00	9	21.4
$101.00 - $250.00	4	9.5
$251.00 - $500.00	6	14.2
$501.00 - $1,000.00	8	19.0
$1,001.00 - $4,000.00	6	14.2

Could the age of the participants, income level, and the year they took the course or other factors influence the estimated economic benefit per acre? A cross tabulation of nominal level data for independent and dependent variables was utilized to determine if significant differences existed among groups related to specific estimated economic value per acre recorded by the participants. In addition, a cross tabulation was used to evaluate each of the variables related to estimated economic benefit per acre, and no significant differences were found between economic benefit per acre and the year the participant took the course. There were also no significant difference found with regard to gender, age, education level and income level.

Conclusions and Implications

Based on the findings of this study, it can be concluded that Extension programs, such as the Multi County New Landowners Educational Series, are having a positive economic impact on the participants. A majority of the participants in this study reported that they had benefitted economically from their participation in the series. The participants were able to assign an estimated dollar value per acre on the economic impact of the practices that they adopted. The findings of the study indicated a substantial economic benefit per acre of the practices that were adopted. The data collected further validates research conducted by O'Neill (2008) indicated that calculating an estimated dollar value of practices implemented as a result of participation in Extension programing should be done. Additionally, the data illustrates the need for continued evaluation of such participants in Extension programs. Extension programs should make every attempt to place a dollar value on the impact of their programs by estimating the monetary value of knowledge gained or behaviors changed.

It was interesting to find that of the 81 individuals that indicated that they experienced an increased value to their property as a result of their participation in the program; only 42 individuals provided an estimated dollar value per acre. One can only speculate why there was such a low response rate to this question. Perhaps the participants had a difficult time quantifying the value or thought that question was simply too difficult to answer. It is also recognized that responses to monetary questions may have caused

attrition in a study. Future studies should consider the possibility of rewording this question and utilizing an estimated parameter of values, such as $0.00 - $100.00, or $100.00 - $500.00 in order to obtain more responses from such questions. However, the results of this study indicate that the participants increased the value of their property as a result of their participation in the program. The economic impact of the increase in property value as a result of the adoption of certain management practices should be evaluated by future studies in order to further validate the need for such programming effort and to serve as a guide for program improvement. Further, the data should be reported in an economic value statement that can be shared with funding partners (Davis, 2012).

Recommendations

The basis for this study was to evaluate the economic impact of past participants of the Multi County New Landowners Educational Series. The goal of this study was to determine if the participants benefitted economically from individual practices that they adopted. The method used to quantify the impact was to allow the participant to place a dollar value of economic benefit per acre. There is no way of specifically identifying which practices had the most impact on the participants and at what level of adoption they were implemented. Future studies could include questions of the participants that allow for them to place an economic value on the specific practice they are performing. For instance, how much does the adoption of soil testing impact the value of a piece of property? In addition, future studies could include questions related to the economic

value of Extension programs, for example, how much would the participant estimate having to pay for similar property management advice from a fee based consultant. Further studies could also include the level of participation by the participants in other Extension sponsored programs, especially those that provide pubic value benefit (Kalambokidis, 2007) for example; do these individuals become involved in one of the master volunteer programs such as Master Gardeners or Master Naturalists after attending the Multi County New Landowner Educational Series? Additional investigation into questions such as these can enable improved Extension programming efforts.

EVALUATION OF THE PERCEPTIONS OF PAST PARTICIPANTS OF THE MULTI COUNTY NEW LANDOWNERS EDUCATIONAL SERIES ON THE ROLE OF THE TEXAS A&M AGRILIFE EXTENSION SERVICE

Introduction and Literature Review

During the past decade, there has been a tremendous influx of new landowners into South Central Texas, particularly in the four counties of Austin, Colorado, Fayette, and Washington. This area of the state is fast becoming a destination for individuals wanting to get out of the urban environments of Austin, Houston and San Antonio and live a rural lifestyle. According to the Austin County Appraisal District, since 2000, Austin County has an average of over 400 new landowners that had purchased 10 acres or more annually. A very common question received by Agriculture and Natural Resources Agents working with the Texas A&M AgriLife Extension Service in these counties come from individuals that have recently purchased property as either a retirement or recreational venture. These individuals soon realize that due to a lack of background knowledge that they do not know how to manage their recent property purchase. Many of these individuals have turned to county agents for guidance and assistance in helping to manage their property. Extension formally responded to this need in 2006 and designed an educational program specifically targeting new landowners. New landowners are characterized by those individuals who had purchased 10 acres or more

within the past three years. The program is a collaborative effort among the four county agents in Austin, Colorado, Fayette, and Washington Counties. The program, entitled "The Multi County New Landowners Educational Series" is a series of eight educational events that specifically target the needs and interests of new landowners. Subject matter includes information on Extension educational programs and services, agricultural tax valuation and open space use of land, weed and brush control for small acreage, soil fertility and soil testing, forage and hay production, stock pond management, livestock and horse production, wildlife management, fruit and nut production, and determining range condition. The agents in each of the four counties represented work closely with local landowners, Extension specialists and other agencies in their respective counties to host each of the monthly educational events. At the conclusion of each of these educational programs, a customer satisfaction questionnaire with a retrospective post analysis is administered to participants to gather information on the amount of knowledge gained on the specific topics presented. The results of these evaluations have illustrated a profound impact on the amount of knowledge gained by the participants and an overall customer satisfaction rating of over 90% (Pierce et al., 2010).

According to a survey conducted in 2004 by the Texas A&M AgriLife Extension Service in Austin County, the majority of individuals purchasing property in this area had no prior affiliation with the county, such as having lived there before or having relatives living in the county. The county is still rural enough that most of the individuals moving to this location want to purchase property and become involved in some type of

small agricultural enterprise. In addition, the survey results indicated that 85% have no agricultural background, and over 50% are at least two generations removed from agriculture. These individuals routinely contact the Extension Office for advice on issues affecting their property. Most had no idea of what to do with the property that they had recently purchased, but were very enthusiastic about the prospects of owning their own farm.

While there is a need for such educational programs to continue as new landowners purchase property in South Central Texas, it is important to measure the adoption of recommended practices. This study sought to assess the attitudes and perceptions related to the adoption of best management practices by the participants of the 2009 Multi County New Landowners Educational Series. The study also attempts to gauge the views and opinions of this target audience about the Texas A&M AgriLife Extension Service. The findings from this study can be used by the administration of the Texas A&M AgriLife Extension Service in interpreting the impacts of educational programs as it relates to soil and water stewardship, animal welfare, integrated pest management and economic impacts on the state economy. County Extension Agents will find this data helpful as they continue to program for this new group of clientele.

The state of Texas was very different in the early 1900's. Farming was the main occupation for almost 40% of the workforce in the United States. The passage of the Morrill Act in 1862 had set aside funding for the creation of the land grant institutions of

higher learning. The subsequent Hatch Act established funding for research to be conducted by these land grant institutions. Extension education work in the United States officially began in 1914 with the passage of federal legislation, known as the Smith-Lever Act. This official act melded together the prior legislation and provided for the diffusion of useful and practical information about agriculture and home economics and encourages the application of the same (Smith-Lever Act, 1914). Since the act was passed by the twenty-eighth congress, Extension in all states has strived to educate the masses on the best practices in agriculture through a network of resident teaching, research and local extension agents working through local county offices. Through the 100 year history of Extension, the very purpose of the original act has been the passion of County Extension Agents across the United States. They are charged with providing the latest research based information to their clientele in their community.

Extension work throughout the century has been met with many positive reviews. Early on however that was not the case, as Agricultural Advisor Tom Marks found out in the early 1900's as he tried and failed to disseminate information to the farmers of Jack County, Texas. His now famous line "I'all work with the pups," came from the fact that despite his best efforts, the local farmers would not adopt his best management practices for farming corn, so he enlisted the farmers own sons and worked with them to help diffuse information (Texas Historic Commission, 1968). The group that Marks founded was named the Boys Corn Club, and was the precursor to the 4-H clubs of today. Since

its inception, Extension has been one of the most successful agencies in securing users' adoption of its research results (Rogers, 1995).

The perception of Extension programs by clientele in recent times has not changed much according to the office of Organizational Development at Texas A&M University. A customer satisfaction rating of well over 80% exists with the application of most Extension programs. But, what is happening beyond customer satisfaction? Are clientele just telling Extension faculty what they want to hear or are they actually adopting the practice that has been demonstrated (Gonzales, et al., 2008)?

The adoption of an innovation or practice over time by participants in an educational program tends to take on an S shaped curve (Rogers, 1995). Not all persons that participate in a program adopt a new skill or practice at the same time. The theoretical foundations used for this study was Rogers' diffusion of innovations. Rogers (1995) defined and described the five stages of the innovation-decision process: knowledge, persuasion, decision, implementation and confirmation.

> *Knowledge* occurs when an individual (or other decision-making unit) learns of the innovation's existence and gains some understanding of how it functions. *Persuasion* occurs when an individual (or other decision–making unit) forms a favorable or unfavorable attitude toward the innovation. *Decision* occurs when an individual (or other decision–making unit) engages in activities that lead to a

> choice to adopt or reject the innovation. *Implementation* occurs when an individual (or other decision–making unit) engages in activities that lead to a choice of to adopt or reject the innovation. *Confirmation* occurs when an individual (or other decision-making unit) seeks reinforcement of an innovation-decision that has already been made, but the individual may reverse this previous decision if exposed to conflicting messages about the innovation. (Rogers, 1995, p. 20).

Rogers goes on to explain that awareness of an innovation by an individual strengthens their motivation to learn more about the innovation at hand.

When dealing with a new clientele, such as new landowners, these individuals may not be accustomed to utilizing Extension as a resource and may turn to inaccurate or biased avenues for information about property management. We are all accustomed to looking in different places for variety of information. Landowners may associate Extension with certain types of knowledge, especially related to traditional land uses and skills (Brunson & Price, 2009).

The Multi County New Landowners Educational Series was conducted from 2006-present attempts to incorporate the Extension principals of dissemination of best research-based management practices to the clientele that have participated in the program. Information compiled from customer satisfaction surveys following the

conclusion of each of the educational programs in the series indicated that 88% of the participants had increased their level of knowledge, and 71% indicated an anticipated economic benefit as a direct result of what they learned in the program. In 2010, 80% of the total clientele that responded to the surveys in this report plan to take actions or make changes based on the information from these activities (Pierce et al., 2010).

Statement of the Problem

Each year there are more and more new landowners who are moving into South Central Texas or are simply purchasing property in the area. The majority of these new landowners are more interested in the recreational value of the land as opposed to the agricultural production value (Wilkins et al., 2000). But, in order to obtain an Agriculture Tax Valuation on their property, they must be engaged in some sort of agricultural enterprise. This change in land ownership has created potential environmental problems associated with natural resource management. One potential solution is to provide this new class of landowners with appropriate basic information about basic resource management (Redmon et al., 2004).

Since 2006, new landowners in South Central Texas, with a limited background in agriculture, have participated in a series of educational courses, planned and implemented by the County Extension Agents for Agriculture and Natural Resources in Austin, Colorado, Fayette and Washington Counties. Well over 300 persons per year have come to at least one or more of the Multi-County New Land Owners Educational

Series. On average, 90% of the participants in the program indicated that they were completely satisfied with the program and that it met their needs for participating. A significant number of the participants, 88%, indicated that they had an achieved a knowledge level of good or excellent as a result of completing the program, and 71% indicated an economic benefit because of participation in the program (Pierce et al, 2010).

This study sought to determine the perceptions of past participants of the Multi County New Landowner Educational Series from 2009. Have the past participants implemented one or more of the management concepts taught during the course? Have the past participants benefited financially by their participation in the program?

Purpose and Research Objectives

The purpose of this qualitative study was to determine the perceptions and attitudes of the participants in the 2009 Multi County New Landowners Educational Series.

The specific objectives of this study included:

1. What are the perceptions and attitudes about adoption of the best management practices taught during the Multi County New Landowner Educational Series?
2. How well do the perceptions of past participants of the program reflect on the role of the Texas A&M AgriLife Extension Service as educational resource for new landowners?

Methods

This research project was descriptive in nature, employing purposive qualitative methods. Participants in the survey were selected based on their participation in the course and reflected the average or typical person, thus representing a typical sample selection (Merriam, 2009). All of the names and addresses of the past participants of the program are currently on file at the Texas A&M AgriLife Extension Office of Austin County. This list is maintained and kept current by the support staff and County Extension faculty. A convenience sample of eight individuals was chosen to participate in a one-on-one interview that was conducted via telephone and face-to-face from March 25 – April 15, 2011. Each of the participants was assigned a unique identifier number in order to ensure the confidentiality of their statements. A series of open ended questions were asked of each participant who elected to participate in the study. The questions focused around the two main objectives of the study, perceptions and attitudes about adoption of the best management practices, and their perception and attitude about Extension.

The qualitative method allowed for the past participants to reflect on and present their personal experiences they experienced in the course as well as what they learned and adopted. Since much quantitative information was already known about the program participants, this design most closely resembled an explanatory research design as it attempted to follow up and refine the current findings (Fraenkel & Wallen, 2006). Hand

written notes were taken during each interview and then typed to enable careful analysis. Extensive interview notes were kept on each of the participants in the study. Emerging themes from the data collected were coded and sorted to specific categories (Creswell, 2002). Codes were assigned by the researcher as it related to the purpose of the study. Once the data was placed into categories, the constant comparative method was used to refine and strengthen ideas to move to a higher level of conceptualization (Glaser & Strauss, 1967).

Results

The demographic data of each participant was collected prior to the interview process. There were five males and three females, all who own property in Austin, Colorado, Fayette or Washington County. Six currently live on the property making it their full time residence, and two use their property for a weekend getaway spot or hobby ranch. Six of the eight have at least a Bachelor's degree and two have a Master's degree. Age ranges are as follows: two are 51-60, two are 61-70, and four are over 71. All of the participants in the study are Anglo. Four participants had never owned rural property, six participants had no prior agricultural background/did not grow up on a farm and one had participated in FFA as a youth. There were no former 4-H members. Participants were also asked how they learned about the program. Three received the information from their local newspaper, three from a personal letter that was sent out and two by word of mouth. Each participant was asked their opinions regarding fees charged for the

program. Each participant indicated the fees associated with the program were at least adequate and some indicated that the fee was too cheap and should be increased.

Each of the interviews was conducted at a convenient time for the interview participant. Participants could select to complete the interview in person or by phone. Two of the interviews were conducted in person, while the other six chose the telephone format. The participants indicated a willingness to share in-depth information both about themselves and the program being studied. Some were more talkative and open than others, but all were willing to elaborate on their experience in the program. Based on the information gathered, five separate themes emerged. These five themes that emerged included: 1.) a new found knowledge about certain agricultural practices, 2.) the benefits of networking with other new landowners, 3.) an increased awareness of the benefits of the Texas A&M AgriLife Extension, 4.) an increased confidence in conducting an agricultural practice, and 5.) a desire to continue their education about property management. Closer examinations of these five themes are outlined below:

1. A New Found Knowledge about certain agricultural practices.

   An overwhelming motivation for taking the course was made obvious once the interviews began; they all wanted to gain more knowledge about how to manage their property. One participant who had no experience or background in agriculture stated, "I was raised on the south side of Chicago and had no knowledge of agriculture or property management" (C1). Another participant who was raised on a farm said, "I was a little rusty and although I had grown up

on farm in another state, I had since moved to the big city and forgotten almost everything about agriculture" (F1). The program put the participants face to face with persons in the agriculture field. Presenters of the educational programs included ranch managers, county extension agents, extension specialists, other agency personnel, and the property owners themselves. Most of the typical agriculture practices related to a given subject area were demonstrated at each of the educational field days. The participants tended to migrate towards the agricultural practice that they felt most comfortable with and the ones that more closely applied to their land situation and interest. When asked which program was of most benefit to them, the participants responded with varied answers, but all agreed that they had learned something at each of sessions. For example, respondents commented, "I learned the most at the livestock and horse production tour. I have owned horses all my life but I had no formal education on nutrition or management" (F2). Some even responded that they now know what they shouldn't be doing on their current property because it does not fit their land situation. This is exhibited by the response, "I got the most out of the pond management seminar and field day, because now I know that our property was not suited for a pond in the first place. I guess you saved me some money" (C2).

2. Benefits of networking with other new landowners.

Each of the participants were identified and invited to participate in the course by their local county extension agent. The local agent worked with their appraisal district and requested a list of persons that had purchased property of ten acres or more during the past three years. A list of new landowners was compiled and a personal invitation was sent to each of them. The highest number of invitations from Austin County was sent in 2006, when over 800 names were selected from the appraisal district's query. A common theme that arose with most of the respondents was they felt they were in good company. "There were a lot of new landowners out there in need of information just like us" (C1). Some of the participants in the study harkened back to the first class that they sat through and where amazed at how many people were in attendance. "I really cannot remember the exact number but I think we had about 75 folks in that first class. We met people from all over and still keep in touch with them" (C3). "I can remember one of the county agents making the comment that Aggies are always identified by their class and we would be the class of 09 since we were attending a course sponsored by A&M. I built a great number of relationships through participating in the classes" (F1).

3. Increased awareness of the benefits of the Texas A&M AgriLife Extension.

   One of the objectives of the study was to determine the attitudes and perceptions of the participants about the Texas A&M AgriLife Extension Service and County Agents as a resource for new landowners. The initial course which takes place in

February gives an overview of the course and some detailed information about tax valuations for rural property. The discussion regarding tax valuation provides a segway into an introduction to Extension work and the educational and advisory services provided by the agents of the Texas A&M AgriLife Extension Service. When asked what their perceptions were regarding Extension prior to taking the course, the participants gave a wide variety of answers, but most had at least heard of the Extension service, and one had some interaction with agents in the past. "I had used the county agents before when I needed to convert a hay-grazer hay meadow into Jiggs pasture, but I had never attended any of the seminars that were offered" (C3). Still another responded, "I had never heard of any such agency before! I was very relieved to know that there was a place where I could go for information" (C1). The participants were also asked about their perception of Extension once they had completed the course. The response was unanimously positive. "I was impressed with the total amount of educational information that the Extension service provides" (C5). Each of the participants seemed to be more than complimentary about how accessible each of the agents and presenters were as well. They (participants) shared different experiences when they received information about questions that they had during the session or during a break. "I was very impressed with how knowledgeable and helpful each of the agents were. Most of the time they answered my question right there when I asked it" (C2). At one point during the interviews, the participants were asked to put themselves into the shoes of the agents and

asked how they would strengthen Extension capacity to assist new landowners. The majority of the participants stated that advertising programs to the general public would be of most benefit. "I really cannot remember how I heard about the course, but I just stumbled on it and it looked interesting. If there is one thing I would suggest, you guys need to advertise more because people need this information" (C5).

4. Increased confidence in conducting an agricultural practice.

   The participants in the study all seemed very confident in their new found knowledge about property management. All were quick to give specifics about some new practice that was attempted and how their abilities had improved after taking the course. Each attributed this new found confidence in their abilities to their participation in the course. "I wanted to learn as much as I could about how to control weeds and improve the soil health of my property. After I took the course and saw first-hand how to do it, I was very confident that I could do it" (C3). Some provided some informational background about how their neighbors had reacted to their new found abilities. One of the participants stated, "Yes sir! I cannot tell you how much more confident I am now that I have taken the course and actually know what is going on. In fact our pastures have had no rain on them in months, but they are greener than any of our neighbors' pastures, because I took what I learned about soil fertility and put on fertilizer based on the soil

test. My neighbors all asked how come your pastures look so good? And I tell them what I did and they are amazed" (C1).

5. A desire to continue their education about property management.

   The final emergent theme was the desire to continue learning and educating themselves on property management. The participants were all in agreement that the course had really just spurred their interest into learning what all could actually be done on their property. Some interesting information that emerged from the participants in this study was that two had actually re-enrolled in the course a second time as a refresher. "I have told more than one neighbor that it is imperative to go to the course, I don't retain it all but that's why I kept coming back" (C1). Two more were participating in one of the master volunteer programs offered by Extension. One was now a certified Master Gardener and another was a Master Naturalist. Still another had decided to pursue an additional degree in Animal Science because of a desire to learn more. All of the participants could attribute their new found desire to continue educating themselves because of their participation in the program. "That'is why I make it a point to keep coming to the Extension field days and seminars; you can never know it all" (C3).

Conclusions and Recommendations

The Multi County New Landowner Educational Series has been in existence since 2006. This educational program conducted by the Texas A&M AgriLife Extension Service of Austin, Colorado, Fayette and Washington Counties is unique in its delivery, design and tenure. The program has generated an enormous amount of usable qualitative data through customer satisfaction surveys and retrospective post analysis evaluations; however, very little data existed that captured the programs impact on a personal level. The data generated by this study suggests several themes related to the program participants' perception of the program. The themes that emerged included: a new found knowledge about certain agricultural practices, the benefits of networking with other new landowners, an increased awareness of the benefits of the Texas A&M AgriLife Extension, an increased confidence in conducting an agricultural practice, and a desire to continue their education about property management.

The data revealed that Extension is making an impact on the lives of those who participated in the Multi County New Landowner Educational Series. The participants' desire for knowledge led them to seek education on property management and eventually lead them to the series. County agents in the four counties involved designed the course as an avenue to educate this clientele on simple, easy to understand concepts that can serve as the building blocks for future programming efforts on multiple levels of agricultural endeavors and natural resources education.

Another conclusion from this study is that new landowners that participate in the course use this to inadvertently act as a vehicle to network and interact with others in their communities. The word "new" illustrates that something has changed or something is different from the way it was previously. These new landowners are not just new to landownership, but they are new to the community. Their entire way of life changed from living in an urban or suburban environment to living in the country. This new lifestyle brings with it a new culture and attitude. The program allows for the participants to gain knowledge about property management, but it also allows them to gain knowledge about their new environment.

Findings also illustrate the need for programs such as this to continue to be implemented and developed. As clientele change, Extension must change with the times and continue to be the people serving entity that it was founded on over 100 years ago, a mechanism for the dissemination of research-based information directly to the people. Empowering individuals with sound educational resources and a place to turn for information were key concepts alluded to by each of the participants of the study.

The old adage that knowledge is power is a familiar statement that illustrates the need to strive to educate oneself. The participants in the study can add a new twist to that old saying that knowledge is not only power but knowledge is confidence. The participants in this study exuded confidence as they gleefully detailed their experiences of farm life after their participation in the course. The confidence to implement something that they

had never tried before or possibly never even heard of was detailed by the participants in the study.

Extension has a long history of providing quality, relevant, researched based programming to people involved in agriculture. This emerging audience, "new landowners," is seeking information about property management and is willing to utilize Extension as a resource if the message can be delivered to them. The ability to make the population aware of the educational programming that exists with Extension is paramount in the success of programs such as the one in the study.

Future Research

This study sought to evaluate the perceptions of the past participants of the Multi County New Land Owners Educational Series. Four significant future research questions emerged as a result of this study and should be investigated further.

Those new to land ownership and property management may not utilize the same information sources that those with a background in agriculture have in the past, such as extension. With limited budgets available, how can extension best advertise available services to make new audiences aware of their educational programming?

Traditional face-to-face meetings, educational workshops, seminars and field days have been the norm for delivering extension programming for the past 100 years. However,

in the future, extension should evaluate the use of advanced technology to generate more participation from new clientele groups that are seeking information about property management even when they cannot attend a face to face meeting.

More than 1500 people have attended the Multi-County New Land Owners Educational Series since its inception in 2006. Hundreds more have participated beyond the new land owner's course in other areas of extension programing such as private applicators training, educational field days and as master volunteers. Future research should evaluate how extension can best utilize the past participants of successful educational programs as advocates to local stakeholder groups and public policy makers.

Finally, specific best management practices taught during the Multi County New Land Owners Educational Series are designed to help the participant to make better management decisions for their property that can in turn be of economic benefit. Future studies should be conducted to determine what specific practices have generated the biggest economic impacts as a result of participation in the series and the subsequent adoption of recommended practices.

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Summary

The trend of individuals moving to the country to experience the rural lifestyle continues in Texas. This group of new landowners has several common characteristics. They tend to be highly educated, have a sufficient level of income to be able to afford the ever-increasing price of land, have a limited agricultural background, and appear to have an interest in learning about the management of agricultural properties. This study sought to describe the audience of new landowners and assess if Extension educational programing efforts are making an impact on their level of adoption of identified practices. The study also sought to determine if the adoption of prescribed best management practices by participants were perceived to have a positive economic impact on this clientele group. Further, the study sought to determine new landowner perceptions regarding the Extension Service as a resource for assisting them. The study included survey responses from 88 past participants of the Multi County New Landowner Educational Series as well as a Qualitative Analysis of interviews with eight individual participants of the same series. Findings from this study revealed that the participants held very favorable opinions of the Texas A&M AgriLife Extension Service and the programs that addressed their educational needs. Further, the study was able to determine that participants had learned several concepts related to best management practices. However, adoption rates of practices tended to be somewhat lower than

expected. Finally, data collected revealed that participants who adopted best management practices reported an increase in the value of their property due to knowledge gained through the new landowner series.

Conclusions and Implications

Adoption of Best Management Practices

Based on the findings of this study, it was concluded that participants hold high levels of knowledge on several core concepts taught during the new landowner program. Knowledge levels tended to be the highest in relation to the requirements for qualifying for agriculture valuation and the options for qualifying for agriculture valuation from the local appraisal district. Other high levels of knowledge indicated by participants included the areas of soil fertility and options for weed and brush control. Most of the participants who completed the survey can be described at the knowledge and decision stages of Rogers (1995) innovation-decision process. Moving from the knowledge to the adoption or implementation stage was not quite as prominent by the participants. Taylor and Dobbs (1990) found that most of the time best management practices are adopted because farmers want to be good stewards of the soil reduces water pollution produce high quality crops with reduced amounts of chemicals. Similar findings were revealed in this study regarding new landowners, as the highest levels of adoption by the participants were in the area of applying pesticides according to label direction and the use of non-chemical methods of brush and weed control. Adoption of the use of wildlife management concepts to improve habitat for native species, soil testing and the

selective clearing of unwanted brush and weeds also seemed to have higher levels of adoption and would indicate a goal by the participant of being a good steward of the property. This compared to other levels of adoption with lower ratings tended to be related to specific management goals. Since the program offers information in multiple subject matters, such as livestock production, forage production, wildlife management, and others, it would seem reasonable to assume that not all of the participants in the survey have the same management or production goals for their property, therefore adoption rates of some aspects of the program were understandably low. The lowest levels of adoption were related to the use of forage testing, as very few of the respondents indicated that they have taken a forage test. Adoption rates on certain practices could also be low due to Rogers' (1995) assumption that adoption rates tend to take an S shaped curve and not all persons that participate in a program adopt the innovation at the same rate. This study did indicate a correlation between the time in which the participant took the course and the adoption rate of taking a soil test, as those participants that took the course from 2006-2008 were indicated a higher adoption rate as compared to participants taken the course in 2009 or 2010. There were also low levels of adoption of the USDA-NRCS EQIP program concepts to promote range health. The low levels of adoption could in fact be related to the 10 year agreement that has to be entered into between the landowner/manager and the USDA-NRCS.

Rasmussen (1951) indicated that Extension played a major role in extending information about best management practices to farmers in the post-World War II era. Findings of this study revealed that Extension continues to play a major role in extending information to new landowners by adapting to a changing population and offering relevant programs such as the Multi-County New Land Owners Educational Series. Findings of this study indicate a need for follow up with program participants to determine behavioral change and the adoption of best management practices. This research validates findings associated with a study conducted by Campbell (1999), where Campbell concluded that follow up is critical in order to demonstrate program impact.

Economic Impact

The measurement of economic impact of Extension programs can often be difficult due to the nature of the subject matter and the inability to quantify data based on monetary value. However, O'Neill (1998) indicated that Extension educators should place a high priority on the assessment of economic impact of its clientele, thus one of the major focuses of this study centered around the economic impact that the Multi-County New Land Owners Educational Series has had on past participants. It is important to determine if programs that Extension offers are truly benefitting participants economically and resulting in positive economic impact. McCorkle (2012) found that beef cattle producers increased the value of their operations through adoption of certain practices taught during Beef Quality Assurance (BQA) trainings. Similar findings were

learned from this study, as the majority of past participants in the Multi-County New Land Owners Educational Series estimated they received an economic benefit as a result of participation in the series. Additionally, the participants indicated that their participation in the series and adoption of prescribed practices had not only had an estimated economic benefit per acre, but had actually increased the value of their property. The majority of participants in this survey can be described at the confirmation stage of Rogers (1995) innovation-decision process, with the evidence of confirmation being the participants had indeed experienced a benefit from adopting an innovation.

Davis (2003) concluded the measurement of outcomes is essential for the continued success of Extension. The findings of this study indicate that, arguably, the most important indicator of success, providing a true economic value to participants was achieved. The potential future benefit to Extension may also include participants in the Multi-County New Land Owners Educational Series continuing to utilize Extension as an educational resource for questions regarding property management can be attributed to the fact they view Extension as an entity that both aids in dollars spent for production and anticipated savings resulting from the adoption of best management practices.

Perceptions of Extension

The findings of this study indicate that Extension is viewed favorably by past participants of the Multi-County New Land Owners Educational Series. King and

Rollins (1995) found that favorable perceptions of Extension can be tied directly to the working relationship between the Extension professional and the participant of Extension program. This study serves to further validate that assumption due to the familiarity that program participants have with the Extension professionals. The educational series is comprised of eight educational programs spanning over an eight month period. Participants are given the option to sign up for all eight courses in the beginning of the year and attend all sessions or have the option of attending individual program workshops. Over the duration of the program, a great deal of time is available for the Extension Professional and program participants to build a relationship. The majority of participants in the program indicated that they view the information they received from the Texas A&M AgriLife Extension Service to be very informative, accurate and unbiased. It also appears that Extension is doing a good job reaching this expanding clientele base. The findings revealed that the majority of participants viewed Extension as a resource for advice about their property and as an asset for new landowners. The data from this study further validates information compiled from customer satisfaction surveys statewide by the Texas A&M AgriLife Office of Organizational Development (2012) that reports an average satisfaction rating of over (80%) by all extension clientele.

Extension must continue to market itself and its programs to new landowners in order to remain relevant to this new clientele group. Ensuring that new landowners are aware of Extension programs is vital to the organization's overall success. Research conducted by

Cartmell, Orr and Kelemen (2006) found that two-thirds of limited scale landowners did not utilize Extension as a resource due to the lack of knowledge of Extension programs. Additionally, results from the qualitative study indicated that most had heard of Extension, but had not utilized them until their participation in the Multi County New Landowners Educational Series. It was concluded that increased visibility is needed to enhance public awareness of Extension programming efforts.

Limitations to the Study

It is recognized that this survey was targeted to past participants of the Multi County New Landowners Educational Series. However, it is possible that some participants in the survey have attended other Extension sponsored activities, thus may not remember which extension sponsored educational program they received their information from. It is possible through use of more specific surveys directed to sub-populations within the group sharing particular interests, more accurate and detailed findings may be able to be obtained. It is believed that some of the participants may have responded differently to some of the subject matter questions given they were not particularly interested in the subject in question. To reduce such bias, the use of more directed surveys could enhance better collection of targeted data.

Other possible studies could include establishing real economic value increases by participants versus relying on participant perception of economic impact. A limitation of

this study was the ability to acquire specific economic impact based on evidence of real property value increases documented by tax rolls and other appropriate sources.

Another limitation with this study is that it was conducted using a survey of past participants of the Multi County New Landowners Educational Series from 2006-2010. During the time period that was being assessed, there was a reduction in land purchases in 2009-2010 due to the economic downturn. Also during this time period, the state experienced a significant reduction in rainfall. This could have impacted the study results.

Recommendations for Research

A number of recommendations can be made based on the findings and conclusions of this study. Texas is a large state, both geographically and in population. As the state continues to grow in population, so does the frequency of land being purchased for recreational value or aesthetics as was documented by Wilkins, et al. (2002). The findings of this study indicate that the majority of persons purchasing property in rural areas have little or no agricultural management background and are in need of education related to agricultural property management. This research has served to further validate earlier studies by Redmon, et al. (2004) that new landowners are in need of education regarding property management. This study also illustrated this clientele group is highly educated and are willing to seek out reliable sources of information such as Extension if aware of its existence, as a similar study by Bardon, Hazel and Miller (2007) indicated.

Future research is needed in other areas of the state that are conducting similar programs to legitimize the findings. This would prove useful in gaining more knowledge about any regional differences between other new landowner groups in different parts of the state. It would also further assist Extension in developing and marketing of specific educational programs targeted towards an ever growing number of new landowners across the state.

This study illustrated that the Multi County New Landowners Educational Series had a significant impact on the participants' understanding of the requirements for obtaining an agriculture valuation and the options for maintaining an agriculture valuation. While adoptions of certain practices were high, the rate of adoption of some practices needed for maintaining an ag valuation was low. Understanding that adoption rates over time vary between groups (Rogers, 1995), possible future research might include an evaluation of the group of new landowners that completed the class from 2011-2014. This research would be useful in determining if adoption rates for these two groups were significantly difference over time. Any interactions associated with the economic downturn in 2009 and 2010 and the subsequent recovery could also be studied. In addition, this future study could be useful in determining the motive(s) behind the adoption of best practices outlined in objective one. The findings illustrated specific practices that were adopted by participants and a future study could help to determine the driving force behind such adoptions and identify additional training needs for this clientele. Would the driving force behind the adoptions be stewardship of natural

resources as suggested by Taylor and Dobbs (1990) or would some other factor serve as the driving force behind adoption? These could include such factors as economics, agriculture policy, marketing or other related factors.

The findings of this study indicated that the perceptions about Extension from the participants of the Multi County New Landowners Educational Series are very favorable. The findings indicate that the majority view Extension as a trusted source of research based information. Future studies should evaluate the possible connections between perceptions of AgriLife Extension and Extension's ability to influence people to act on advice. Rogers (1995) stated that Extension has been one of the most successful agencies in securing adopters of its research. These future studies should investigate where Extension is most effective or influential in providing education to new landowners. Additionally, studies to reveal potential barriers to adoption may be warranted to enhance Extension's educational impact.

Future studies could include questions of participants that allow for them to place an economic value on specific practice being evaluated. For instance, how much does the adoption of soil testing impact the value of a piece of property? In addition, future studies could include questions related to the economic value of Extension programs, how much would the participant estimate having to pay for similar property management advice? Further studies could also include the level of participation by the participants in other Extension sponsored programs; especially those that provide pubic value benefit

(Kalambokidis, 2007) such as those that became involved in one of the master volunteer programs such as Master Gardeners or Master Naturalists.

Other possible studies related to economic impact could utilize local real estate values and compare new land purchases of those individuals who have participated in the Multi County New Landowners Educational Series and those who have not attended the course.

Recommendations for Practice

There are several recommendations for practice based on this study's findings and conclusions. First, Extension must continue to promote new land owner programs to newly identified land owners since this is an ever increasing clientele group in need of knowledge about property management and this group may be unaware of Extension as an educational resource (Bardon, Hazel & Miller, 2007).

Extension must continue to evaluate its programming, in order to ensure the educational services being provided are meeting clientele needs and are reaching the appropriate clientele with accurate information. Davis (2003) concluded that measurable outcomes and impacts are essential for the long-term success of Extension. The findings of this study yielded useable data that describes the population in the study as well as their perceptions of Extension as a resource, their knowledge gained and adoption of practices and associated estimated economic impact as it relates to their participation in the series.

This data can be used for future reference by Extension to help interpret the positive impact of Extension educational programs to targeted populations such as new landowners.

Finally, findings from this study indicates that Extension should strongly consider an emphasis on developing a state wide effort for new landowner programs in counties that are experiencing population growth and land fragmentation, especially targeted to those areas located near the urban/rural interface. The possibility of creating a state wide specialist position that could develop curriculum, provide subject matter training for agents and land owners, and promote extension to new landowners should be evaluated and put into practice. Further, extension should investigate the possibility of developing a fee based program targeting new landowners, much like the current Farm Assist program, where new landowner can subscribe and pay a fee for personal consulting services regarding best management practices on their property. Wagoner (2005) noted that 65% of new land purchases in Texas near large metropolitan areas include 180 acres or less. The findings of this research would indicate that along the western boundary of the Houston metro area, that number is 103 acres. Extension educators have an opportunity to interact with this clientele group and provide them with the latest research-based information. Therefore, the marketing of Extension sponsored educational programs targeting new landowners will become increasingly important and should be a high priority for the coming years.

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APPENDIX A

SURVEY INSTRUMENT

Default Question Block

In which year did you participate in the New Landowner Course?

- 2006
- 2007
- 2008
- 2009
- 2010

How were you made aware of the program? (Please check all that apply)

- Extension website
- Word of mouth
- Brochure/Mailing
- Newspaper/Radio
- Realtor
- Other (please specify)

What is your age?

- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 66 and above

What is your gender?

- Male
- Female

Which of the following best describes your race or ethnicity?

- White (not hispanic)
- Hispanic
- African American
- Native American
- Asian/Pacific Islander
- Other

What is your education level?

- Less than high school
- High school diploma or GED
- Some College
- College Degree
- Post Graduate or Professional Degree

Which range best describes your annual family income from all sources?

- Less than $50,000
- $50,000 - $74,999
- $75,000 - $99,999
- More than $100,000

Have you been involved in agriculture growing up?

- Yes
- No

Do you currently live on a farm or ranch?

- Yes
- No

Do you have a Private Pesticide Applicator License?

- Yes
- No

Did you obtain your Private Pesticide Applicator License as a result of what you learned in the New Landowner Course?

- Yes
- No

How many acres do you currently own or manage?

Please rate your level of agreement with each of the statements below.

	Strongly Disagree	Disagree	Agree	Strongly Agree
I found the information I received on the Texas A&M AgriLife Extension Service to be very informative				
I veiw the Texas A&M AgriLife Extension Service as an asset for new landowners				
I utilize the Texas A&M AgriLife Extension Service as a resource for questions about my property				
I believe the information I receive from the Texas A&M AgriLife Extension Service as accurate and unbiased				

Please rate your level of knowledge on each of the following core topics as a result of your participation in the New Landowner Course.

	Poor	Fair	Good	Excellent	Did not attend session
Basic requirements for maintaining my agricultural exemption					
Options for qualifying for an agricultural exemption					
Basics of soils and fertility					
Concepts of Prop 11 Wildlife Tax Valuation Plan					
Weed identification					
Brush identification					
Options for controlling weeds and brush					
Basic pond management					

Please rate your level of knowledge on each of the following core topics as a result of your participation in the New Landowner Course.

	Poor	Fair	Good	Excellent	Did not attend session
Wildlife habitat management	○	○	○	○	○
Forage fertility and management	○	○	○	○	○
Grass selection	○	○	○	○	○
Managing forages for hay production	○	○	○	○	○
Growing Pierce Disease resistant wine grapes	○	○	○	○	○
Basic pecan management	○	○	○	○	○
Native range evaluation and management	○	○	○	○	○

For each practice listed below, please respond with the frequency you use the practice listed.

	Never	Seldom	Often	Always	N/A
I utilize the local Appraisal District as a resource	○	○	○	○	○
I utilize soil tests to properly apply fertilizer	○	○	○	○	○
I utilize the information on brush control to selectively clear unwanted brush species	○	○	○	○	○
I utilize forage testing to determine the quality of my hay or forages	○	○	○	○	○
I properly apply pesticides according to label directions	○	○	○	○	○
When appropriate, I utilize non-chemical methods to control weeds and brush	○	○	○	○	○

For each practice listed below, please respond with the frequency you use the practice listed.

	Never	Seldom	Often	Always	N/A
I utilize the information on pond management to identify and control aquatic weeds	○	○	○	○	○
I utilize the information on wildlife management to improve habitat for native species	○	○	○	○	○
I utilize forage testing to determine hay price/value, or as a marketing tool to sell hay	○	○	○	○	○
I utilize the Extension Fruit and Nut Spray Schedule when applying pesticides to fruit and nut crops	○	○	○	○	○
I utilize range condition evaluation tools to properly stock my pastures	○	○	○	○	○

Please answer Yes or No to the following questions. If you did not attend the session where the practice was discussed, please select N/A

	Yes	No	N/A
I have taken a soil test on my property	○	○	○
I have taken a forage test on my hay	○	○	○
I have conducted a wildlife census on my property	○	○	○
I have planted fruit or nut varieties adapted to our area	○	○	○
I have planted or identified native grasses and plants on my property	○	○	○
I have utilized photo monitoring to record changes of my property over time	○	○	○
I have utilized the USDA/EQIP program to assist with practices to promote range health	○	○	○
I have utilized aquaplant.tamu.edu as a resource to identify pond weeds	○	○	○
I have registered my brand(s) with the County Clerk	○	○	○
I have developed written lease agreements	○	○	○

Do you believe that the New Landowner course provided an economic benefit to you in your agricultural operation?

- Yes
- No

Please estimate the amount of economic benefit you believe you received, on a per acre, per year basis. Base this benefit on what you learned, changed or adopted as a result of participating in the New Landowner Course.

- $1 to $3
- $4 to $6
- $7 to $10
- $11 or more

Do you believe that the practices you changed or adopted as a result of the New Landowner Course have helped to increase the value of your property?

- Yes
- No

Please estimate the amount per acre that you believe your property value has increased as a result of these changes.

What has been the most significant change(s) that you have implemented as a result of the New Landowner Course?

What could be changed or improved about the course to make it more effective in meeting the needs of new landowners?

APPENDIX B

SURVEY INSTRUMENT INFORMATION SHEET

INFORMATION SHEET

Assessing Behavioral Changes related to the Adoption of Best Management Practices by past participants of the Multi County New Landowners Educational Series

Introduction

The purpose of this form is to provide you (as a prospective research study participant) information that may affect your decision as to whether or not to participate in this research. You have been asked to participate in a research study entitled, "Assessing behavioral changes related to the adoption of best management practices by past participants of the Multi County New Landowners Educational Series." The purpose of this study is to better understand the number of practices adopted and the rate at which these practices were adopted.. You were selected to be a possible participant because you participation in the Multi County New Landowners program. This study is being self-funded by the researcher. However, this study has the support of the Texas AgriLife Extension Service and the County Agents that were involved in the program.

What will I be asked to do?

- You will be asked to complete one online survey.
- The online survey will take approximately 10-15 minutes.
- You will have the opportunity to sign-up for participation in a focus group session.
- The focus group session will take approximately 1 hour.
- No other participant in the Multi County New Landowner Educational Series will be made aware of your participation.
- Completion of the survey will allow you to receive one free soil test.
- The information you share will remain confidential.
- Responses will be coded to ensure confidentiality.

What are the risks involved in this study?

The risks associated with this study are minimal, and are not greater than risks ordinarily encountered in daily life.

Texas A&M University IRB Approval IRB Protocol # 2011-0592	To: 07/31/13

What are the possible benefits of this study?
You will receive no direct benefit from participating in this study; however, Findings may result in the documentation of strategies that can be used to improve the overall quality of the program, the development of course content, and use of online technologies to meet instructional needs.

Do I have to participate?
No. Your participation is voluntary. You may decide not to participate or to withdraw at any time without your current or future relations with Texas A&M University being affected.

Will I be compensated?

- There is no direct monetary compensation for participation. However, Completion of the survey will allow you to receive one free soil test.

Who will know about my participation in this research study?
This study is confidential. The records of this study will be kept private. No identifiers linking you to this study will be included in any sort of report that might be published. Research records will be stored securely and only the research team will have access to the records.

Whom do I contact with questions about the research?
If you have questions regarding this study, you may contact Philip Shackelford, County Extension Agent for Agriculture and Natural Resources at (979) 865-2072 or via email p-shackelford@tamu.edu.

Whom do I contact about my rights as a research participant?
This research study has been reviewed by the Human Subjects' Protection Program and/or the Institutional Review Board at Texas A&M University. For research-related problems or questions regarding your rights as a research participant, you can contact these offices at (979)458-4067 or irb@tamu.edu.

Participation
Please be sure you have read the above information, asked questions and received answers to your satisfaction. If you would like to be in the study, click on the "Take Survey" Button.

Texas A&M University IRB Approval		To: 07/31/13
IRB Protocol # 2011-0592	From: 08/01/12	Authorized by: KM

APPENDIX C

PRE-NOTICE EMAIL REQUEST FOR PARTICIPATION

Dear Past New Landowner Participant,

I would like to thank you for your participation in the Multi County New Landowners Educational Series. Our series began in 2006, and to date we have had over 1500 participants that have attended at least one or more of the programs that have been offered from the Austin, Colorado, Fayette and Washington County areas.

I am currently conducting a study of the past participants in this program. The study is focused around the measurement of your level of adoption of key practices that were taught during the course and your perceptions of the role of the Texas A&M AgriLife Extension Service related to land stewardship.

You will soon be receiving an email with a link to an online survey. Please click on the survey link and take just a few moments to answer the questions. This survey shouldn't take more than 10-15 minutes of your time to complete and will hopefully yield some very valuable information that can be used to address future programming needs. Your responses are strictly confidential.

As a bonus for completing the survey, you will be eligible for a complimentary routine soil analysis, that you can turn in this November during our soil testing campaign. You will be notified as to where and when to drop off your samples.

Thank you for participating in this survey and I look forward to hearing from you. If you have any questions, please contact my office at (979) 865-2072, or send me a return email.

Sincerely,

Philip Shackelford
County Extension Agent-AG/NR
Austin County

APPENDIX D

ONE-ON-ONE INTERVIEW PROTOCOL

Assessing Behavioral Changes related to the Adoption of Best Management Practices by participants of the Multi County New Landowners Educational Series

Focus Group Protocol

The protocol that follows includes open-ended questions and a number of areas to keep in mind. The purpose of these guiding questions is to enable individuals to be as informative as possible in their responses. The questions are neutral and encourage additional information, but do not suggest specific answers. Encouraging questions such as 'Why?, "Why not?", "How is that?" or "In what ways?" will be used to support conversation. Follow-up questions will be employed to obtain further information and should touch on whatever the participant has already shared, thus these are only suggestions.

Guide

Introduction:
As a past participant in the Multi County New Landowners Educational Series, you have been selected to participate in this study about your perceptions of adoption of best management practices that were taught during the course. The study being conducted will help the Texas AgriLife Extension Service more effectively and efficiently plan for future programs that deal with new landowners.

Thank you for taking the time to visit with me today. This focus group session should take only approximately 1 hour. As a reminder, all information shared will remain confidential. Your name will not be associated with any comments you make. Information shared will be reported in aggregate and your name will not be associated with the study. We value your time and appreciate your willingness to participate.

Guiding Questions:

- What were your reason(s) for participating in the Multi County New Landowners Educational Series?
- What session did you find most useful and why?
- What was your background knowledge of the session that you found to the most useful?
- What session did you find most challenging to implement that you attended during the series and why?
- What was the most significant piece of knowledge that you took from the course and applied to your current operation?

- How confident were you that you could complete the task of implementing the new practice? Describe your experience in putting the practice into play.

Conclusion:
Thank you for sharing your thoughts, ideas, and experiences with us. Our goal is to better understand your perceptions about the adoption of best management practices taught during the Multi County New Landowners Educational Series and how the Texas AgriLife Extension Service can better serve clientele such as yourself. We appreciate your participation. Again, your name will not be associated with the comments you have provided.

APPENDIX E

IRB APPROVAL

TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH AND GRADUATE STUDIES - OFFICE OF RESEARCH COMPLIANCE

1186 TAMU, General Services Complex
College Station, TX 77843-1186
750 Agronomy Road, #3500

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http://researchcompliance.tamu.edu

Human Subjects Protection Program — Institutional Review Board

APPROVAL DATE:

09-Sep-2011

MEMORANDUM

TO:	SHACKELFORD, PHILLIP W
FROM:	Office of Research Compliance Institutional Review Board
SUBJECT:	Initial Review

Protocol Number:	2011-0592
Title:	Assessing behavioral changes related to the adoption of best management practices by participants of the Multi County New Landowners Educational Series
Review Category:	Expedited
Approval Period:	09-Sep-2011 **To** 08-Sep-2012

Approval determination was based on the following Code of Federal Regulations:

45 CFR 46.110(b)(1) - Some or all of the research appearing on the list and found by the reviewer(s) to involve no more than minimal risk.

Criteria for Approval has been met (45 CFR 46.111) - The criteria for approval listed in 45 CFR 46.111 have been met (or if previously met, have not changed).
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(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation or quality assurance methodologies.

(Note: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

Provisions:	
Comments:	Waiver of Documentation of Informed Consent (45 CFR 46.117(c)(2)): the research involves no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed each year in order to continue with the research project. A Continuing Review along with required documents must be submitted 30 days before the end of the approval period. Failure to do so may result in processing delays and/or non-renewal.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB Office.
3. **Adverse Events:** Adverse events must be reported to the IRB Office immediately.
4. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB Office for review. The Amendment must be approved by the IRB before being implemented.
5. **Informed Consent:** Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project.

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TEXAS A&M UNIVERSITY
DIVISION OF RESEARCH - OFFICE OF RESEARCH COMPLIANCE AND BIOSAFETY

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Human Subjects Protection Program

Institutional Review Board

APPROVAL DATE: 01-Aug-2012

MEMORANDUM

TO: SHACKELFORD, PHILLIP W

FROM: Office of Research Compliance
Institutional Review Board

SUBJECT: Request for Continuation

Protocol Number: 2011-0592

Title: Assessing behavioral changes related to the adoption of best management practices by participants of the Multi County New Landowners Educational Series

Review Category: Expedited

Approval Period: 01-Aug-2012 **To** 31-Jul-2013

Approval determination was based on the following Code of Federal Regulations:

(8) Continuing review of research previously approved by the convened IRB as follows:

(a) Where (i) the research is permanently closed to the enrollment of new subjects; (ii) all subjects have completed all research-related interventions; and (iii) the research remains active only for long-term follow-up of subjects; or

(b) Where no subjects have been enrolled and no additional risks have been identified; or

(c) Where the remaining research activities are limited to data analysis.

Provisions:

Comments:

This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed each year in order to continue with the research project. A Continuing Review along with required documents must be submitted 45 days before the end of the approval period. Failure to do so may result in processing delays and/or non-renewal.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB Office.
3. **Adverse Events:** Adverse events must be reported to the IRB Office immediately.
4. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB Office for review. The Amendment must be approved by the IRB before being implemented.
5. **Informed Consent:** Information must be presented to enable persons to voluntarily decide whether or not to participate in the research project unless otherwise waived as noted above.

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DIVISION OF RESEARCH
Office of Research Compliance and Biosafety

TEXAS A&M UNIVERSITY

APPROVAL DATE: 07/23/2013

MEMORANDUM

TO:	Theresa PESL Murphrey ALRSRCH - Agrilife Research - Ag Leadership, Education & Communication
FROM:	Institutional Review Board
SUBJECT:	Amendment

Protocol Number:	IRB2011-0592
Title:	Assessing behavioral changes related to the adoption of best management practices by participants of the Multi County New Landowners Educational Series
Review Type:	Expedite
Approval Period:	09/09/2011 To 06/15/2014
Review Categories and Regulatory Determinations:	Category 7: Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies
Documents Reviewed and Approved:	

Description of Submission:	IRB Amendment
Provisions:	
Comments:	This is a request to increase enrollment from 200 to 250. The request appears appropriate.

This research project has been approved. As principal investigator, you assume the following responsibilities

1. **Continuing Review:** The protocol must be renewed by the expiration date in order to continue with the research project. A Continuing Review application along with required documents must be submitted by the continuing review deadline. Failure to do so may result in processing

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delays, study termination, and/or loss of funding.

2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB.
3. **Unanticipated Problems and Adverse Events:** Unanticipated problems and adverse events must be reported to the IRB immediately.
4. **Reports of Potential Non-compliance:** Potential non-compliance, including deviations from protocol and violations, must be reported to the IRB office immediately.
5. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB for review. The Amendment must be approved by the IRB before being implemented.
6. **Consent Forms:** When using a consent form or information sheet, you must use the IRB stamped approved version. Please log into iRIS to download your stamped approved version of the consenting instruments. If you are unable to locate the stamped version in iRIS, please contact the office.
7. **Audit:** Your protocol may be subject to audit by the Human Subjects Post Approval Monitor. During the life of the study please review and document study progress using the PI self-assessment found on the RCB website as a method of preparation for the potential audit. Investigators are responsible for maintaining complete and accurate study records and making them available for inspection. Investigators are encouraged to request a pre-initiation site visit with the Post Approval Monitor. These visits are designed to help ensure that all necessary documents are approved and in order prior to initiating the study and to help investigators maintain compliance.
8. **Recruitment**: All approved recruitment materials will be stamped electronically by the HSPP staff and available for download from iRIS. These IRB-stamped approved documents from iRIS must be used for recruitment. For materials that are distributed to potential participants electronically and for which you can only feasibly use the approved text rather than the stamped document, the study's IRB Protocol number, approval date, and expiration dates must be included in the following format: TAMU IRB#20XX-XXXX Approved: XX/XX/XXXX Expiration Date: XX/XX/XXXX.

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DIVISION OF RESEARCH

Research Compliance and Biosafety

TEXAS A&M UNIVERSITY

DATE: 10/17/2014

MEMORANDUM

TO: Theresa PESL Murphrey
ALRSRCH - Agrilife Research - Ag Leadership, Education & Communication

FROM: Human Subjects Protection Program
Institutional Review Board

SUBJECT: Amendment

Protocol Number:	IRB2011-0592D
Title:	Assessing behavioral changes related to the adoption of best management practices by participants of the Multi County New Landowners Educational Series
Review Type:	Expedite
Documents Reviewed and Approved:	shackelford.data gathering (Version 1.0)

Description of Submission: To include retrospective data.

This research project has been approved. As principal investigator, you assume the following responsibilities:

1. **Continuing Review:** The protocol must be renewed by the expiration date in order to continue with the research project. A Continuing Review application along with required documents must be submitted by the continuing review deadline. Failure to do so may result in processing delays, study termination, and/or loss of funding.
2. **Completion Report:** Upon completion of the research project (including data analysis and final written papers), a Completion Report must be submitted to the IRB.
3. **Unanticipated Problems and Adverse Events:** Unanticipated problems and adverse events must be reported to the IRB immediately.
4. **Reports of Potential Non-compliance:** Potential non-compliance, including deviations from protocol and violations, must be reported to the IRB office immediately.
5. **Amendments:** Changes to the protocol must be requested by submitting an Amendment to the IRB for review. The Amendment must be approved by the IRB before being implemented.
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7. **Audit:** Your protocol may be subject to audit by the Human Subjects Post Approval Monitor. During the life of the study please review and document study progress using the PI self-assessment found on the RCB website as a method of preparation for the potential audit. Investigators are responsible for maintaining complete and accurate study records and making them available for inspection. Investigators

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9. **FERPA and PPRA:** Investigators conducting research with students must have appropriate approvals from the FERPA administrator at the institution where the research will be conducted in accordance with the Family Education Rights and Privacy Act (FERPA). The Protection of Pupil Rights Amendment (PPRA) protects the rights of parents in students ensuring that written parental consent is required for participation in surveys, analysis, or evaluation that ask questions falling into categories of protected information.
10. **Food:** Any use of food in the conduct of human subjects research must follow Texas A&M University Standard Administrative Procedure 24.01.01.M4.02.
11. **Payments:** Any use of payments to human subjects must follow Texas A&M University Standard Administrative Procedure 21.01.99.M0.03.

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